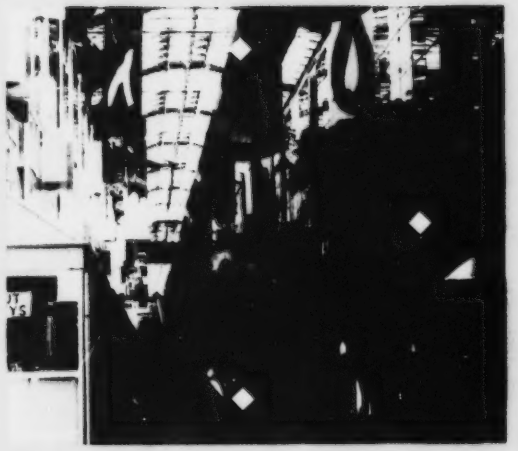
# LIVABLE WINTER CITIES



RAIC / AIA WINTER CITIES R / UDAT

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"Here houses and towns should open like flowers to the sun of spring and summer but, also like flowers, turn their backs on the shadows and the cold northern winds, offering sun-warmth and wind-protection to their terraces, gardens and streets. They should be most unlike the colonnaded buildings, the arcaded towns and matt-shadowed streets of the south Europeans and Arabs, but most similiar in the basic function - helping people to maintain their skin at a comfortable 35 degrees C. When studying the beautiful towns of the south, whether old or new, it is not the forms themselves which should interest us, but the inventiveness and artistry with which people solved the needs which were peculiar to their situation and time, the comfort and beauty which they created. Only by such methods can arise a personal and indigenous Alaskan, Canadian, Scandinavian or North Russian tradition."

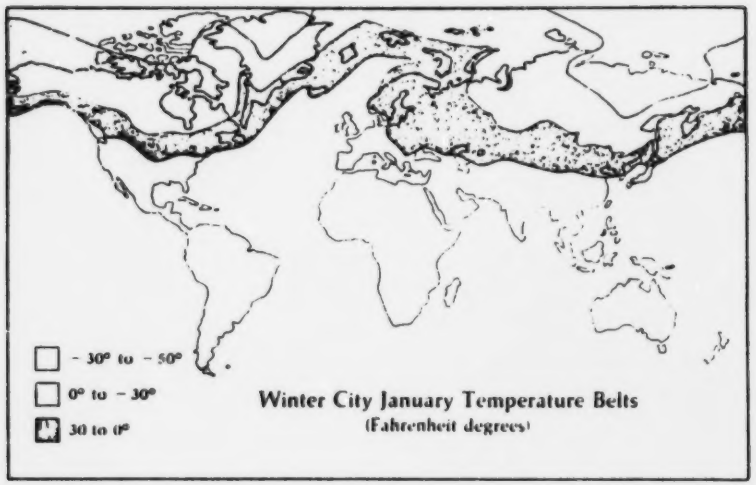
- RALPH ERSKINE, ARCHITECT, SWEDEN

**WHAT IS A WINTER CITY?**

There may be no tougher test of fortitude than the one you take on cold, dark winter mornings. It comes at the moment when you must open the door - leave the warmth inside - and plunge out into a bone chilling wind. Whether you're setting out on a trek to a bus stop or spending agonizing moments waiting for your car to warm, you probably feel totally alone in an unfriendly world.

You are not alone in your struggle with sub-zero temperatures. In fact, over six hundred million people face these frozen solitary moments each year. The world's 'winter people' live in thousands of towns and cities in over 30 countries around the world. We speak different languages, have differnt customs and traditions - but we all endure extreme winter climates.






For the sake of our discussion, we've arbitrarily defined winter cities as places where the average January temperature is 32°F (0°C) or colder, and that are generally located above 45° latitude.

## LIVABLE WINTER CITIES R/UDAT

The preparation of this report was funded by grants from the Alberta Ministries of Housing and Municipal Affairs, Livable Winter Cities Association, City of Edmonton and Alberta Association of Architects. It was drafted by a team of professionals organized jointly by the Royal Architectural Institute of Canada and the American Institute of Architects through the AIA's Regional/ Urban Design Assistance Teams (R/UDAT) Program. The team, made up of Canadian and American design, planning, economical development, public policy and urban studies specialists, met in Edmonton, Alberta, Canada from February 20 to 23, 1986 during which time this report was written and illustrated.

Team members donate their time and are reimbursed only for travel and living expenses, while in the field. Since the R/UDAT program's beginning in 1967, over 400 men and women have served as members of 90 teams.

## STATE OF THE ART IN WINTER CITIES DESIGN

Early discussions during planning of the Livable Winter Cities '86 conference confirmed that little of substance had ever been done, in Canada or elsewhere, to improve understanding of or to develop a knowledge base related to the planning and design of more livable winter cities. Simultaneously, a realization emerged that this was not just a Canadian problem.

The lack of general or textbook information related to this subject gave rise to the idea that, if properly handled, a generic R/UDAT in conjunction with the Livable Winter Cities '86 conference, the planned 1987 International Design Competition, and the Livable Winter Cities '88 conference, collectively held the potential to substantially increase the base of knowledge in this subject area.

It was also recognized that, however exciting the progress made through this series of events might be, much would remain to be done. In order to ensure that the work in this area would continue, it was noted that other bodies would have to "buy into" the process long term. The Alberta Association of Architects readily agreed, as did the RAIC Research Corporation, who we hope will be involved as a research project in the analysis of entries received in the International Design and Ideas Competition, in the distillation from these entries of ideas or concepts related to livable winter cities, and in the editing and publication of these ideas as a resource document or textbook to be available, hopefully, to attendees at the Livable Winter Cities '88 conference in Edmonton.

Because this project relates so directly to the stated primary objective of the RAIC, that being "to develop the quality of architecture", it was further hoped that the RAIC and the AIA will continue to provide moral and substantial support for this ongoing project.

## THE "GENERIC" R/UDAT PROGRAM

The Urban Design and Planning Committee of the American Institute of Architects has sent interdisciplinary Regional/Urban Design Assistance Teams to 90 American cities since 1967.

The purpose of the R/UDAT program is to assist these cities in dealing with specific local problems and issues through the participation of citizens, agencies and local interest groups. The objectives of the program are to improve physical design, to stimulate public and private action, and to provide an opportunity for consensus among diverse community groups and individuals.

The reports written during these visits reveal that although the problems and solutions are local in context and emphasis, some issues investigated are also national and international. The AIA has, therefore, decided to begin a new series of R/UDATs -- called "Generic" R/UDATS -- to occur parallel to the existing program. Through examining local situations, this new series hopes to offer some transferability and awareness of common national issues.



## THE R/UDAT ON LIVABLE WINTER CITIES

This is the second of this new series. It examines the special design and planning considerations needed to help make cities having dominant cold climates more livable and enjoyable for their citizens. It is a joint effort undertaken by the Royal Architectural Institute of Canada and the American Institute of Architects to expand the base of knowledge which will be available to all those involved in affecting the quality of the human environment in the winter cities region of the world.

The R/UDAT Team focused its discussion and debate on western Canadian and American winter cities as a way to flesh out generic design and planning principles. Because of this it should be understood that the transfer of these design concepts to older cities or to European and Asian cities must carefully take into account existing historical and cultural settings.

## R/UDAT'S BACKGROUND IN EDMONTON

This report represents the first fruits of the efforts of AIA and RAIC to cooperate on projects of mutual interest. The groundwork for this joint venture was started from discussions held last year between Brian E. Eldred, FRAIC, President, RAIC and John Busby, FAIA, President, AIA. Their concept was to link the R/UDAT process to the Winter Cities Forum 1986 to be held in Edmonton, Alberta, February 15-19, 1986. The R/UDAT, while focusing on general design issues in winter cities was encouraged to use the Edmonton environs as a laboratory for testing its findings.

We expect that this completed study will become a significant reference document in its own right, and that in a modified form, it may become the basis of a briefing document to participants in the proposed international design and ideas competition for downtown Edmonton sponsored by the Livable Winter Cities Corporation. This competition will encourage submissions from a broad range of participants, including professional and non-professional people, and will be completed in time to be judged, documented and published prior to a second Livable Winter Cities Conference to be held in Edmonton in February 1988. A follow-up R/UDAT visit to Edmonton is proposed to assist in the evaluation of these competetion entries.

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# EXECUTIVE SUMMARY

## SUMMARY AND RECOMMENDATIONS

The winter city will not be created by a focus on space age bubbles, heated sidewalks, malls that suck the life of the city into their corridors, or right-to-sun ordinances. It will require changes that are, at once, more profound, and considerably more modest. The hardest shift will be attitudinal: to constantly see the city in its winter state, to ask each time a decision is made how things will fare during the months of cold and darkness. If such questions are taken seriously, new designs will emerge, new standards will need to be adopted, and new patterns of collaboration will have to be forged. Many of these have already begun to evolve in cities like Edmonton; the barrier is the persistence of a summer state of mind. Winter cities need to be creative about winter, not simply tolerant.



The Winter Cities Conference collected scores of possibilities for dealing with northern cities, and for the first time allowed experiences to be compared across geography and cultures. The R/UDAT team has attempted to make these possibilities more concrete by considering them in the laboratory that Edmonton represents. Many are old ideas, applied perhaps in new ways; a few we hope represent fresh perspectives.

The report which follows asserts:

- Northern cities are different from their southern counterparts because they must be planned and developed as dual environments. The white environment is as critical as the green one.

- The usual responses to winter are denial, and an overwhelming desire to escape to summer climes. History and popular mythology are almost devoid of winter references. Until winter is seen as an inescapable aspect of daily life, it will never find its way onto a city's political agenda.

- That providing more integrated environments at all scales, from neighbourhoods to downtown, is critical. It will require, however, new institutional arrangements which allow public and private funding to be shared, and difficult issues of access and control to be arbitrated. Edmonton's new Downtown Development Authority promises to be one such vehicle.

- The real innovation in building for the winter will emerge from a re-examination of building materials, standards, methods of funding and maintenance, processes of reviewing buildings for their environmental impacts, and a miriad of other grubby details. Don't look for a quick fix.

- Environmental art, lighting, heated rest areas and other ways of adapting the outdoor environment can be essential ingredients in making winter into a more pleasurable experience. Expanding the range of, and audience for, outdoor winter recreation can have a similar impact.

- Adapting downtown areas to winter use is a critical priority, since they serve the largest concentrations of city residents. Edmonton has made a promising start in its skyways and indoor spaces. But there is a need to make the system more legible, connect the indoor areas better with streets and outdoor open spaces, and knit together the several district areas of downtown.

- Warmth is a class and social issue. The city must be designed to accommodate those who cannot afford to enjoy commercial environments as well as those who can, for youth as well as adults, for children and elderly as well as the middle aged. A greater span of concern should also mean greater political support for improvements.

- There is much to be learned from the recent examples of public and private cooperation in Canadian and American cities. The lessons are especially appropriate to the mixed use, compact winter city.

Every city will have its own logic of how to plan and develop its winter environment, rooted in local traditions, geography and resources. The R/UDAT report should be seen and read as general principles, not as prescriptions.

# INTRODUCTION

Northern cities are quietly moving from a phase of building for summers to one of planning and constructing for winters. The transformation is taking place with little comment and is in many ways an ackowledgement that past strategies have left a somewhat incomplete environment for year around living.

Northern cities in the west were built almost entirely in the twentieth century by private and public builders working on their properties, to answer their own needs. These independently built projects were likely left unconnected. Open spaces including streetscapes, passive parks and recreational land reinforced the image of a 'green environment', of being outdoors in the warmer months. More recently, the planning community has sought to overcome the apartness of buildings by incorporating designs that feature physical interconnectedness and functional integration. Depending on which city is examined, some interesting new urban forms have evolved, particularly in downtown areas.



More elusive has been the issue of dealing with winter months. The reality that winter can mean up to eight months of cold weather each year is only now beginning to make its mark on urban design. There are several explanations suggested for this denial of winter. There is, for example, the traditional difficulty and discomfort associated at a personal level for dealing with the cold. It means extra clothing and additional expenses. There are chores in getting dwellings ready for cold months. Extra heating and transportation bills have to be paid monthly. Family problems often emerge because of extended cold and long periods of darkness.

Pride is associated with being a resident of a northern community. Surviving the elements is something special. A lot of bravado is heard about living through the winter. However, so much of our mass advertising, including consumer products, holidays, clothing, and transportation emphasizes sun and green surroundings that residents are unsure of their own status, living conditions and quality of life in the scheme of things. A defensive chauvinistic pride is the result of personal insecurity. Would they be happier and more economically successful if they lived in the sun and sand? After all, everyone jokes about Winnipeg being called 'Winterpeg'.

# ESTABLISHING THE AGENDA

## CHANGING LIFESTYLES/URBAN FORM

Much has changed in the last two decades. For one thing, consumer products such as winter clothing for children and adults is now lighter and warmer, making personal mobility easier. Houses are now better insulated so that the price of winter heating is not as traumatic as it was a few years ago. Cars start more easily and run more reliably during the winter months. Recreation facilities have been built close to cities so that winter activities such as cross country skiing, downhill skiing and hockey are participated in as a matter of course. The decline in the cost of airline transportation makes it easier to travel away from northern cities for short periods of time on a more regular basis.

New electronic communications systems make it easier for professionals to stay in touch with their field at a less expensive cost. Many of the highest paying new jobs created in the world have been in the northern cities close to resource development sites. New methods of production at the work place make it easier for employees to live in northern cities and commute regularly to more remote resource worksites.

For all these reasons, the life styles are changing for residents of northern cities. However, we have noticed that the cities themselves have been slow to change particularly when issues of the built environment are examined far more closely. There is still, for example, a great deal of resistance in the culture of northern cities to residents using their urban environments as a place to walk and to stroll about. We do not find on the streets of these cities the congestion and the over crowding associated with street life of more southern cities.

There are several explanations of why this may be the case. In the downtown area, which is still so important as a focus of urban life, it is obvious that planners representing both public and private interests have not been able to overcome barriers to there being a more lively core area.

Private developmental processes have dominated our downtown since the Second World War. Both national and local developers have been more preoccupied with the establishment of profitable buildings on their own site at the expense of their impact on the immediate urban environment. In a similar vein there has been a failure on the part of public planners to involve their own capital works projects in a more co-ordinated approach to urban problem solving.

Because the R/UDAT team has treated the downtown area as the most pressing area of concern, we think it is important that the renewal process begin with that sector of the city. We also think it is important to establish a winter presence for the downtown. By that we mean the planning and developmental processes must take into account that these cities have been constructed in a cold environment in which citizens have traditionally been very reluctant to move about for many weeks of the year.

Downtown landowners have a great stake in establishing a more responsive planning process and a more livable environment. Investment in the downtown of winter cities far exceeds that of any other sector of the city. Private landowners representing the local and national development corporations have as their interest the successful redevelopment of the downtown business section into an environment that attracts more residents on a more regular basis. Similarly, local governments and their provincial counterparts have both property and tax investments that need to be protected through proper governmental investments in infrastructures and in regulatory authorities.

## A NEW COALITION

We think that the successful planning of a more livable and approachable downtown rests in the establishment of a new coalition. Normally, in these circumstances, this would be limited to business and government participants. Yet, it could be extended to include residents of neighbourhoods in the transitional zones if they wish to see downtowns be developed on a successful, humane scale. A more difficult problem to resolve is finding spokespeople for citizens who are not yet presently involved in the downtown or in its transitional neighbourhoods. Nevertheless, they must be there in the future if the process is to work.

The solution to this successful inclusion of general citizen interest rests in the political process. Therefore, it is essential that local leaders, principally the mayors of northern cities, understand the importance of the establishment of a broadly-based coalition that will move the downtown from being a reflection of narrow interests to that which expresses a more ambitious and more open notion of a cold climate community.

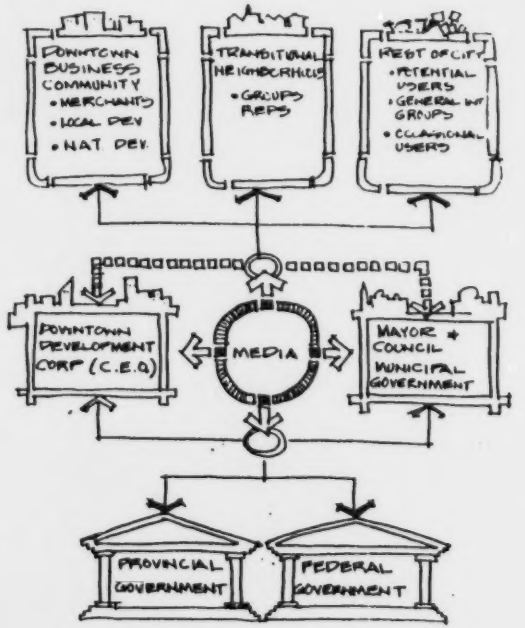
In order to be a central focus for the urban complex, the downtown must perform more functions for more people for more months of the year. The most logical shift to take place at first is that which involves planning for the cold environment. Many of the efforts that have been tried in the past, such as "plus 15" systems joining buildings, have progressed on the assumption that people have a choice and that, therefore, the builders of these solitary spaces could in fact maintain their privacy.

## SHAPING THE AGENDA

If the city and the business community are to venture and to agree on new expenditures to make the city more livable, then the end product must be an environment which is shared by the largest number of people as possible. For example, personal mobility about the downtown in areas protected from the environment is important only if residents feel that they are part of this scene and included in the design, implementation, and are operation of these areas. The sense of ownership may arise from sharing activities or from understanding that the construction of these facilities had their interests in mind.

In a similar sense, more diffuse open spaces around the downtown and extending into the suburbs could be better construed as winter space which incorporates activities and forms acceptable to a larger number of residents. In part, this will be solved through questions of design, but more importantly, it also revolves around questions of leadership. If the community leadership feels comfortable that the city is livable in as a winter environment, then the entire community will begin to express its commitment to these surroundings. Construction programs which seek to avoid the obvious, the long winter months, will confirm peoples impressions that if they have the choice, they should take their cues from others and seek to escape from the cold.

Agendas are not easily set unless specific goals are recognized and unless a consensus is reached among a city's important constituent groups. In the case of winter cities, there is the problem of extending activity into winter months via public and private investment. Specific areas, such as the downtown, which have traditionally been very dependent on pedestrain movement, now suffer from design problems as each public and private developer has sought to encapsulate users and to isolate them from their surroundings. While some ventures have opened doors to neighbouring activities and buildings, the balance of the downtown remains isolated, under-utilized and unappealing. Repeated efforts to plan around problems associated with cold weather might now be ended by acknowledging the significance of the environment, setting a community agenda and then designing appropriate solutions through consensual mechanisms.




WINTER CITY POLICY PROCESS

# WARMTH AS A CLASS ISSUE

**URBAN SOCIAL STRATIFICATION**

Cities are those places that traditionally provide an opportunity for people of different backgrounds and different social status to share spaces - to interact if necessary - to work - to perform whatever functions are necessary and appropriate. As transportation modes have expanded our options, and expanded the range of urban/metropolitan areas, these opportunities for interaction between different groups have declined.

Freeways and suburban development have segmented groups within the city. Many have come to view downtown in particular as an inappropriate place for certain people and certain activities - children are not typically found in great numbers in downtowns; people are reluctant to remain downtown after work hours, or to make a special trip downtown, unless they have a very specific goal or destination; downtown is associated in many minds with danger or with the presence of the "wrong" sorts of people.

## WHO OWNS THE CITY?

"Who owns the city?" is a question with many possible answers. These answers are particularly difficult in relation to downtown space. At the most basic level, property owners and merchants probably feel the greatest degree of ownership - they after all pay property taxes on downtown spaces. Developers (even those who are not necessarily active) feel an inherent sense of ownership. They view downtown as a site that is crucial to their continued ability to make investments and make a profit. People who work downtown, who find themselves there on a regular and predictable basis have another kind of ownership - they "use" downtown in ways that are critical if downtown economic survival (eating out, shopping etc.) is to be maintained.

10 "Special" users, those who go downtown only occasionally for a particular reason - an evening at the theater, a visit to an art museum - have an occasional sense of downtown ownership. They want it to be predictable and legible, though they may not care very much about small changes in ownership or land use. Finally there are those who use a downtown regularly and predictably because there is nowhere else in the city that they fit: the indigent, poor chemically-dependent individuals and the homeless. Though none of the other users of downtown want to recognize this group, they must be considered part of the downtown presence - and a part that is not likely to disappear.

Downtown spaces must respond to the different demands placed on them by these competing users and uses - and spaces are not often compatable for such disparate groups. For example, occasional users of

downtown - those attending cultural events for example - don't like to encounter street people, especially if they're being harassed or panhandled. Passive street people are less objectionable - especially if they're on the opposite side of the street. The degree to which a city, or its downtown, make it possible for different groups to use the same spaces may be one measure of civility. And to some degree, as citizens, we must decide whether we want our cities to be "civil" in this respect, and how to accomplish it if we do.

## WARMTH AS A CLASS ISSUE

In the context of "winter cities", and thinking that winter cities are different in important ways from cities in warmer climates, this sense of downtown ownership and use becomes an important issue. Winter provides another slant on our normal ways of sorting out people. Warmth is a class issue in a winter city environment, though it has seldom been conceptualized as such. To be warm, dry and comfortable whenever possible in the winter is a luxury afforded to those who have dependable sources of income. Others make do as best they can - sleeping on heating grates or in subway stations - and generally making those who are warm uncomfortable by their presence. The presence of people without resources is not limited to winter cities. All cities face problems with the social organization of space, primarily in the downtowns. To overlay the reality of cold and windy weather on this already difficult issue does, however, add another dimension to this discussion.

In warm weather cities, the homeless and the indigent are present, but they are able to move around on foot rather easily. If people have to sleep outside, it is not life threatening. In winter cities these groups are constrained to the downtown and its fringes in several ways: what limited amounts of single room occupancy housing are available are generally in this region of the city, along with attendant services like detoxification centers, blood plasma centers, drop-in centers that also provide meals. In addition, due to the constraints imposed by the

cold and the wind, no one can move very far outside before being adversely affected by it. It is no accident that people in these groups huddle in doorways or subway entrances - the rest of us would do the same thing if we had nowhere else to go.

Avid proponents of winter living claim that each person's attitude is crucial to making life in northern climate viable. We can tolerate winter, or we can thrive on it. These people also claim that northern dwellers don't want to be totally protected from the weather all of the time. Such attitudes imply a choice which is not available to all. It is easier to be enthusiastic about winter if you don't have to be out in it all the time, or if you have enough money to pay your heating bills.

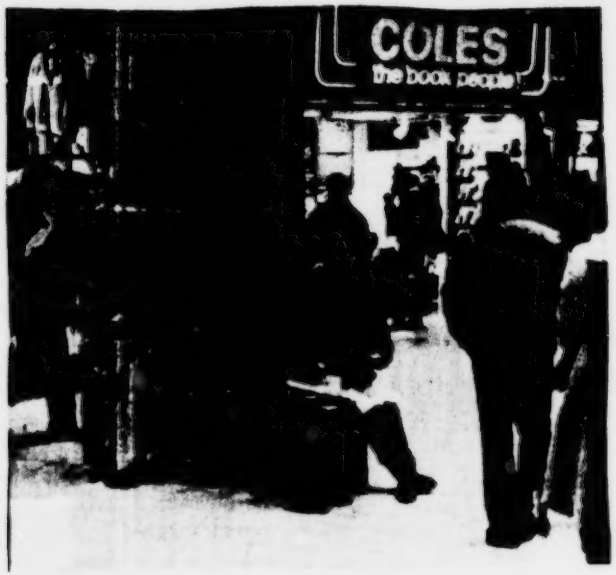
**DOWNTOWN IN THE WINTER**



For the purpose of illustration, let's divide people into the gross categories of those who are generally comfortable and those who, at least in winter, are generally not. Those who are generally warm - people who arrive downtown by car or public transit and then move around through skyways - have little understanding of what it must feel like to be both cold and unwelcome. Developers and workers in downtown office buildings that have a "welcoming" atrium cannot fathom why someone who is not like them should be allowed to merely occupy these spaces. Seeing such people in these places is disturbing. The people don't "fit" the highly-designed fabric of these spaces. Perhaps even more, they make the rest of us feel somewhat uncomfortable by forcing us to confront head-on the inequities that are an integral part of any social fabric. And because most of us would rather not confront the issue of class, or our own potential

for inhumanity, we choose to ignore these issues by removing from our vision the people who raise them for us.

In reflecting on downtown development and design issues, and with particular concern for winter city environments, the idea of warmth being class-related deserves some attention. It has important implications for how our downtown spaces are designed in the first place - whether they're inclusive or exclusive. It also has implications for how these spaces are managed once they're constructed. If we want a downtown that is genuinely "urban", we must rethink these issues. And we must rethink them with concern for all users of the downtown, not just for the financially able.



A related issue, though one that is not conditioned specifically by class, is the social isolation caused by winter. For many people - most obviously the elderly - winter poses severe challenges to one's ability to move about freely. Consciously recognizing winter's social impact on our environments, whether at the downtown or neighborhood level, will help us begin to come to grips with the social distance imposed by weather.

**IMPLEMENTING SOCIAL CONSCIOUSNESS IN WINTER CITIES**

Several cities have begun to address these issues, even if in limited ways. The central concern here is how spaces, and especially public/private spaces within a downtown, can be conceptualized, designed, or managed so that people from different social strata can share them in a way that is comfortable for all.

- Pioneer Square in Seattle is not specifically a winter city example, but it is relevant. Pioneer Square is the old "skid row" area of Seattle. It is now mostly renovated and gentrified, but with a conscious recognition of the rights of the existing population. Single room occupancy hotels (SRO'S) and the services that naturally accompany such housing (low-cost restaurants) have been maintained in the area to a degree. The street people hang out in Pioneer Square, but they do not significantly disrupt the flow of tourists, or their spending.



- The Grand Avenue in Milwaukee is a relatively new downtown project. It is a redeveloped former arcade and an expanded shopping centre that links two department stores. This is an environment that fairly invites the "wrong" people to come in because it invites everyone. When inappropriate persons (e.g. non-shoppers) come into the Grand Avenue, they are not automatically evicted. They are watched closely by the security guards, but are allowed to stay for some time if they are not causing trouble or being obtrusive.

- New York City provides another example, arguably not one that should be widely followed. Here the indigent are rounded up and forced into city shelters when the temperature falls below 0. This of course raises the civil liberties issue of whether or not people have the right to remain outside even if the conditions may be life threatening.

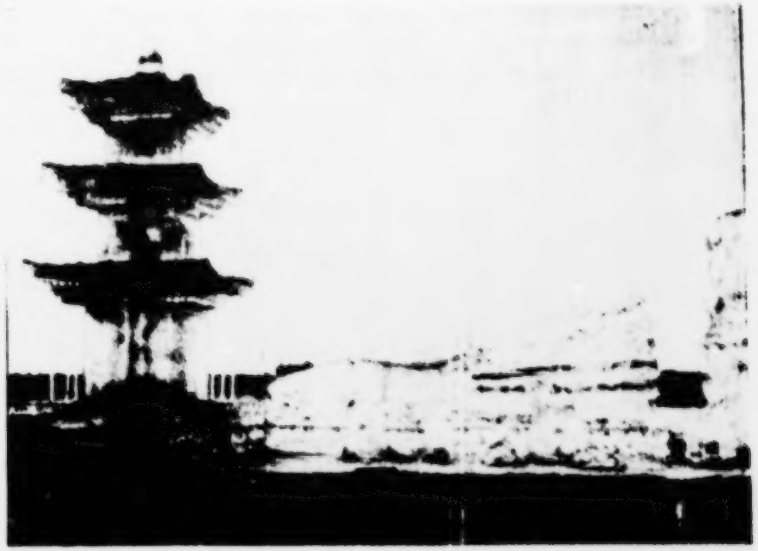
The general lesson that might be drawn from these examples for winter cities in particular is clear. Whatever design modifications can be created as a result of sensitivity to the issue of winter will certainly improve city life for all, and could significantly improve life in general for those who have, until now, not been part of any design or planning process.

**APPLICATIONS TO EDMONTON**

Several of the design suggestions contained above have important implications for the social use of the downtown area.

- Canopies over the sidewalks that contain nearby elements are a generous notion about sharing heat. The point is to disperse these warming opportunities widely. To do only one or two is a mistake - this would only provide obvious collection points for people who might then scare away shoppers and office workers.

- "Management" solutions to hangers-on in public/private spaces like Edmonton Centre are also possible. The management of these spaces can be tolerant - if security guards don't immediately remove anyone who doesn't "fit". Again a balance is necessary. Middle class consumers have to be courted for these places to be viable, but they needn't have exclusive use of spaces that are partly supported by public subsidy.



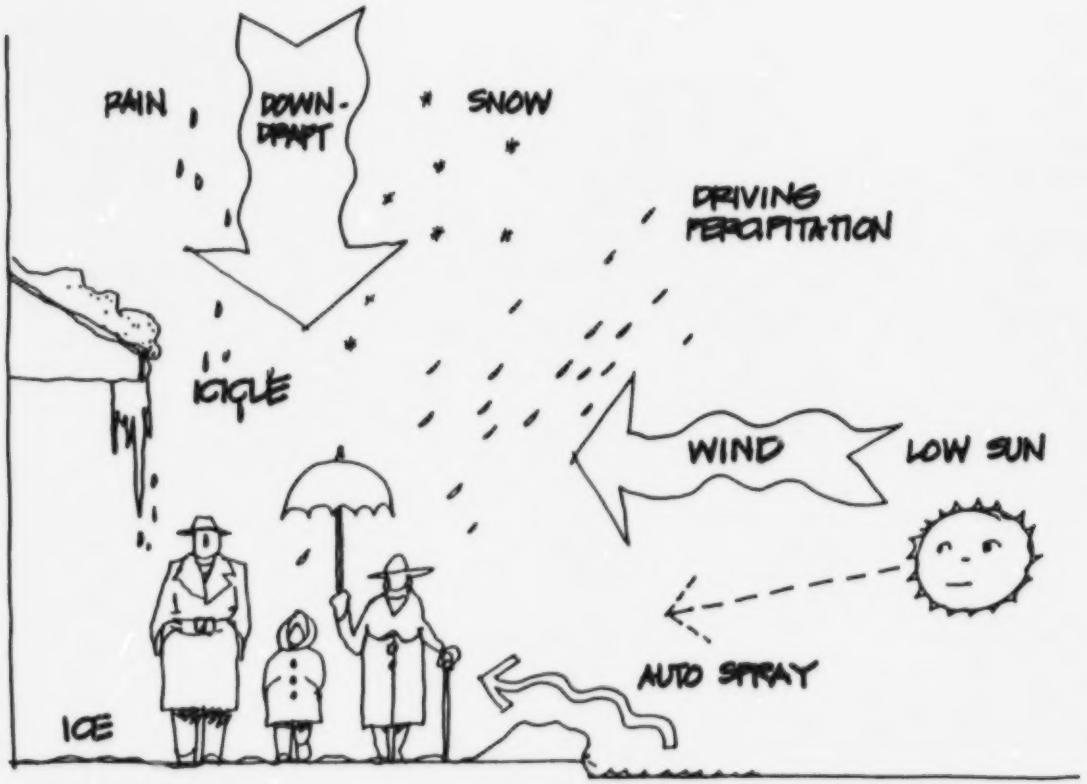
# NEW WINTER CITY FORMS

## OVERALL IMAGERY

Residents of Northern cities, it is said, appreciate summer more, for having survived the long passage through winter. They hibernate through the dark and cold months, spending days and evenings indoors. When spring arrives, the first crocus, the pale green color of buds emerging on the lifeless limbs of trees and the lengthening daylight, symbolize a change in the human spirit as well as the natural rhythms. Summer is to be enjoyed, winter just tolerated.

But it need not be so. Remembrances of childhood in winter are often fond: making angels in the fresh snow or gliding effortlessly across the surface of an outdoor rink, building igloos from crusted snow and delighting in the wonderland of a hoarfrost morning. Even the feeling of walking backwards into the wind to protect face and ears is recalled with a certain sense of pride over mastering the environment.

Our northern cities are built with few aspirations. Winter implies nothing more than overcoming the cold and nuisance that the season represents. Winter is not a part of the imagery of the city communicated with pleasure. Of the 52 photographs in Edmonton's tourist promotion brochure, only one is taken in winter, and it shows no city at all, only snow-covered hills. Changing this sense of the city must be the first agenda for building the winter city.



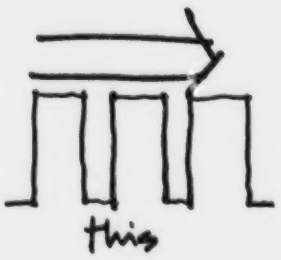

ELEMENTS OF PEDESTRIAN DISCOMFORT IN WINTER CITIES (IE COLD, WET, DISTANCE + WIND). COMFORT REQUIRES MINIMUM WARMTH, PERIODIC SEATING, PEDESTRIAN DENSITY AND STREETSCAPE INTEREST.

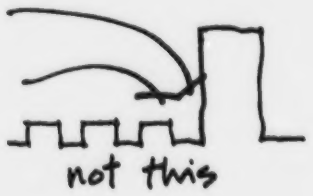
FORT EDMONTON IN WINTER

**HISTORY**

Where to begin? We have no historical sense of winter in the city. Photographs of the early years of Edmonton are seldom taken in winter, and those that exist chronicle only extraordinary events like record snowfalls. Fort Edmonton closes during the winter months. How much better it would be to open it, perhaps on weekends, portraying winter days at the turn of the century. Feeling the warmth of the pot-bellied stove in the country store or riding in a horse-drawn sleigh or the many other experiences of winters past might begin to fill the large gap in the city's consciousness.

Oral and visual histories of winter ought to be recorded and communicated. How people dressed in winter on the coldest days in the past, how they drew their water from taps at the corner before all districts of the city were modernized, how they enjoyed themselves outdoors - all might make subjects for an exhibition. Collecting private photographs of the city in winter, and scouring the files of newspapers and official photographs, might allow the winter history of a city to be reconstructed.

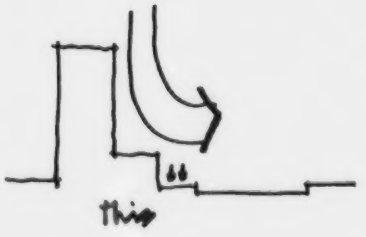



The desire for warmth in the winter city should also have a bearing on the materials used to build the city. Outdoor surfaces -- sidewalks, walls, seating, etc. — capable of absorbing and retaining heat should be preferred. Customarily they will be dark in color and heavy in areas. Metal surfaces should be avoided wherever human contact is possible. Landscape materials which protect from wind in winter and add color to the white world should be sought out. By making such considerations a consistent factor, overtime, the urban landscape will evolve into a distinctive environment.

**INDIGENOUS FORMS**

The flowering of "the atrium" in cold cities like Edmonton is the latest response to climate in building. These places are, with good reason, displayed to the world as suited to winter living. But the general public has little sense of how climate has altered building form in years past, and of the more modest examples of indigenous building. Outdoor screened porches that can be enclosed as cool vestibules in winter, heavy masonry walls which store energy from day to night, stucco exteriors capable of resisting the stresses of the changing climate, and evergreen rows which cut the winter winds - all are frequently overlooked as examples of distinctive forms for the climate. The public looks elsewhere for its aesthetic ideals. By communicating the solutions which have evolved, and working inventively at contemporary adaptations of them (such as the climate-tempering outside corridors in the J.G. O'Donoghue Building at the University Farm Site which serve the same functions as these enclosed porch), an environmental aesthetic may emerge which is uniquely the product of the winter-summer reality of the northern city.



**CONNECTIONS TO NATURE**

Anyone who has lived on the edge of the prairie knows that it is a living, changing place through all the seasons including winter. Urbanization has obscured our ties to this ecosystem, and we have lost our sense of inter-dependency with nature, and our sense of change of seasons is dulled. Cities blessed with open areas such as Edmonton have the opportunity to maintain fingers of natural landscape penetrating the urban fabric. In completely built-up areas, other inventions may be needed. Why not restore a few acres of prairie landscape to be enjoyed in the center of the city, perhaps on non-vacant rail lands unlikely to be used over the next decade? Imagine the pleasure of a lunch time spring walk across a prairie landscape purple with spring crocuses. The Japanese have, in their gardens, developed the high art of condensing whole landscapes into small areas.

Making more of the special qualities of seasons, including winter, is the larger aim, but the transition between seasons must also be considered. Much of the school year for elementary school children is the fall to winter and winter to spring interregnum, yet their play spaces are planned as if such periods of mud and slush didn't exist. How much better to design at least part of the schoolyard so that melting snow can be dammed and pooled, rather than prohibiting children from using it.

MONUMENTAL ACCESS FROM CBD TO MAJOR PARK SYSTEM (IE EDMONTON).

**ENVIRONMENTAL ART**

The whiteness of winter, the short days and long nights, the plasticity of snow and ice as materials are all cues for a new form of environmental art that celebrates winter. Magnificant ice sculptures carved for the Winter Cities Conference are one example. As art they are more precious because they are temporary; they must be enjoyed while they last.

The possibilities are limitless, taking Edmonton as the canvas. Downtown might be imagined as a castle on its hill. City-scale ice sculpture could create a medieval ice wall at the top of the escarpment, complete with a ceremonial entrance with turrets where 100 th St. climbs the hill. Ice sculptures might line the two sides of the valley and be lighted at night so they are visible as landmarks.



The white ground of the hillsides might be the screen for laser lighting at night, projected from the tops of downtown buildings. Or the snow might be lit with colors replicating those of the northern lights, in a slowly changing pattern on the hillsides of the south bank. Color and lighting, as prescient as fire works on a warm summer night, might completely shift the sense of long winter nights.

The ground form in open areas can be mounded so that the pattern in winter is as interesting as summer. Something might be made of the formless snow dumps so that they attract the eye, rather than offend it. Snowfences arranged so that they encourage special patterns of drifting in open areas might also represent a new art form.

In built-up areas, the pleasure of tiny lights on trees or outlining buildings can completely transform the night environment, an effect that is magnified by snow on the ground. Christmas decorations hung across streets delight city residents -- wouldn't it be possible to design street lighting so that it had those qualities year around?

COMPUTER "SNOW" ART

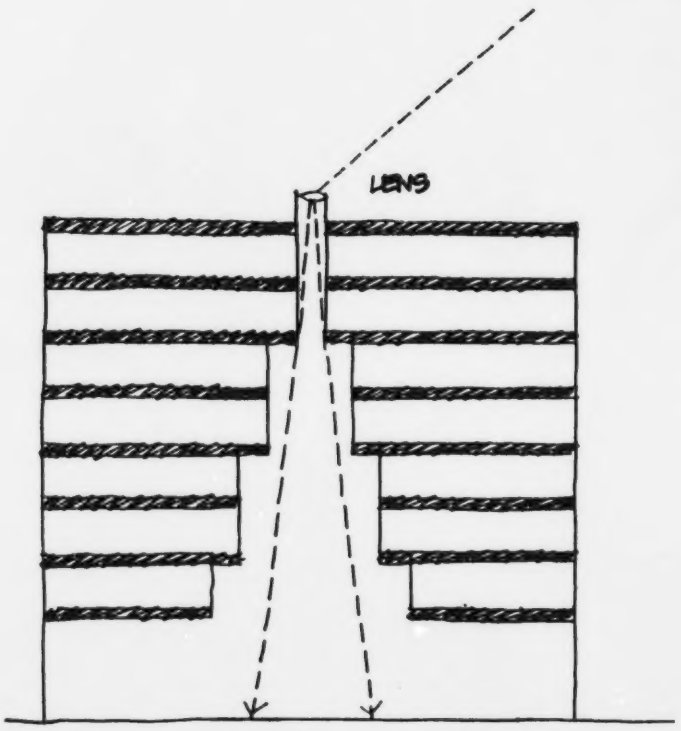
USING SNOW DUMPS FOR RECREATION

Buildings which sit as objects in landscape must be envisioned as residing in a white world as well as in green surroundings. The great yellow field-house at the University of Alberta is a winter building, although possibly more appropriate to a more remote location where it is not seen side-by-side with other structures. Warm colors (yellows to browns to red rather than green or icy blue) give relief from the winter, and intense chromes are not dulled by the snow-saturated atmosphere or gray winter days.

But there are also crystal clear winter days with bright sunshine, and they offer potential for heightening the sense of light in winter. Sun rays can be split by large prisms, projecting spectra on sidewalks or the white ground surface. Mirrors and mirrored structures can capture the low sun, and its sunsets and sunrises. But the caution with such must be their effects on the summer environment, where too much reflected radiation in early spring and late fall can make nearby vegetation vulnerable to sudden freezes.

These are but a few suggestions. What is needed is a winter arts program, which transforms the sense of the city during these critical months.






LIGHTING BUILDING INTERIORS USING A FRESNEL LENS. MAKING INTERIOR RAINBOWS

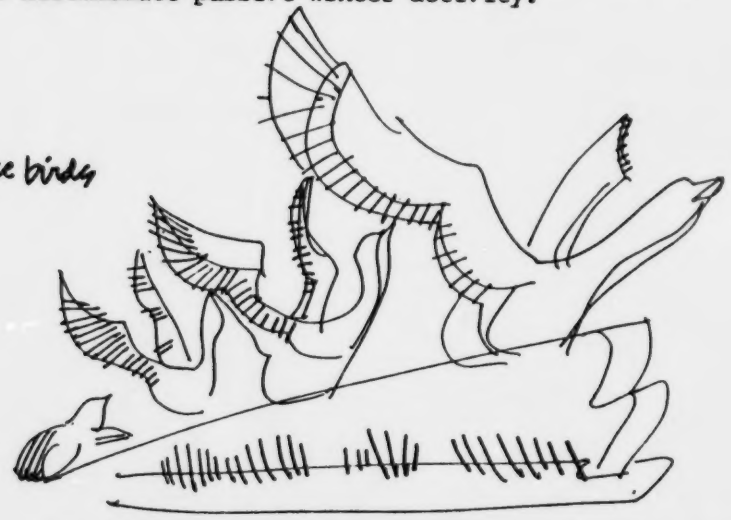
## OUTDOOR PUBLIC SPACES

Most efforts in Winter Cities have centered on bringing a sense of the outdoors inside. But there is also a need to extend some of the comforts of the indoors to the world of outdoor public spaces. It suggests new attitudes towards outdoor spaces, not simply borrowing from the examples of Southern Italy or the New England commons. Some principles are:

Access to sunlight should be an essential requirement for locating outdoor public spaces to extend their use to the spring and fall.

Building forms should mitigate, not intensify, wind velocity. Wind studies should be required for all tall buildings before approval.

Small scale outdoor spaces should have heat islands - shelters that trap the sun and shield the winds - to accommodate passive winter activity.

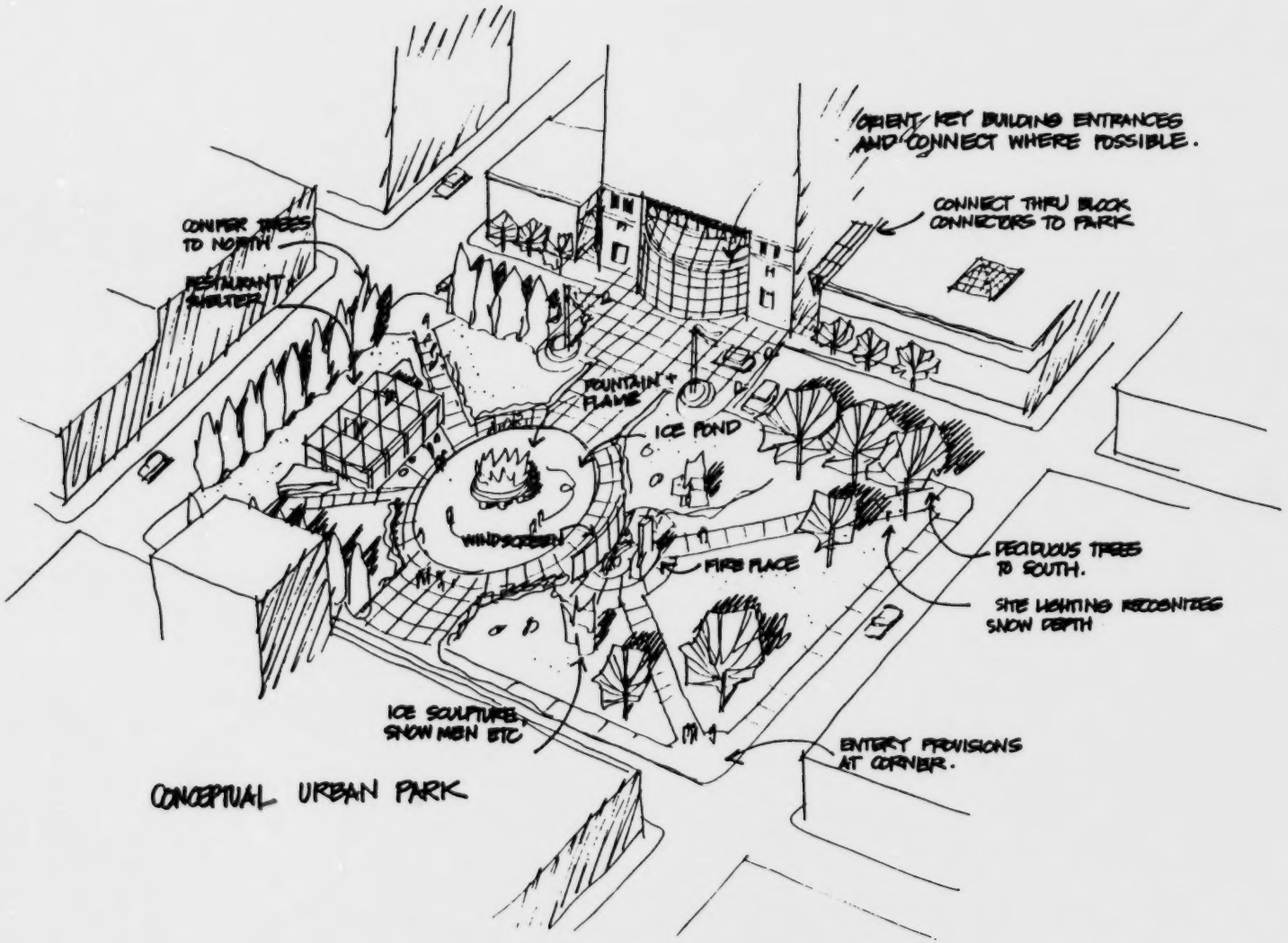


GLAZED SHELTER WITH INFRA RED HEATER

Landscaping in outdoor public spaces must provide wind protection and color. Conifers are one solution, but not the only one.

Winter use of outdoor spaces and circulation systems can be enhanced with lighthearted features (e.g. glitzy lights, colored banners, ice sculpture, etc.).

Every outdoor space should have some use and purpose during the winter months, just as every indoor space should be attractive in the summer.




CONCEPTUAL URBAN PARK

URBAN PARK WINTER USE : SKATING, RESTAURANT, WINDSCREEN, FIREPLACE, TOILET ROOMS.

## EVENTS AND CELEBRATIONS

Organized events can have as powerful an effect on the imagery of the city as any physical characteristics. Certainly the Quebec Winter Carnival comes to mind as that city's signature, just as Klondike Days are for Edmonton and the Stampede is for Calgary. Ironically, the Klondike had all to do with surviving and revelling in the harsh winter environment, yet the event is celebrated during the height of summer. So much for winter identity!

A meaningful winter festival in Edmonton or other northern cities could do much to break the denial of winter. But it should be foremost a community festival, not aimed largely at tourists. As it grows in popularity it will surely attract others.

28 Winter games in the outdoors could be one dimension, reviving and codifying the many pastimes ranging from snowshoeing to jam-can curling to toboggan racing down the hillsides. Every neighbourhood could be charged with fielding a team, with the grand finals scheduled for a new winter holiday date. It would involve both organized and informed events aimed at uniting the city across the complete age and class spectrum. While summer festivals emphasize the sense of ethnic diversity of the city, how appropriate it would be to emphasize, in winter, the city that residents all share.

CELEBRATE WINTER CITY HERITAGE AND CAPITAL CITY IDENTITY : HOLIDAYS, NATIONAL EVENT DAYS, INAUGURATIONS, AFFAIRS OF STATE, ETC.

**CITY FORM**

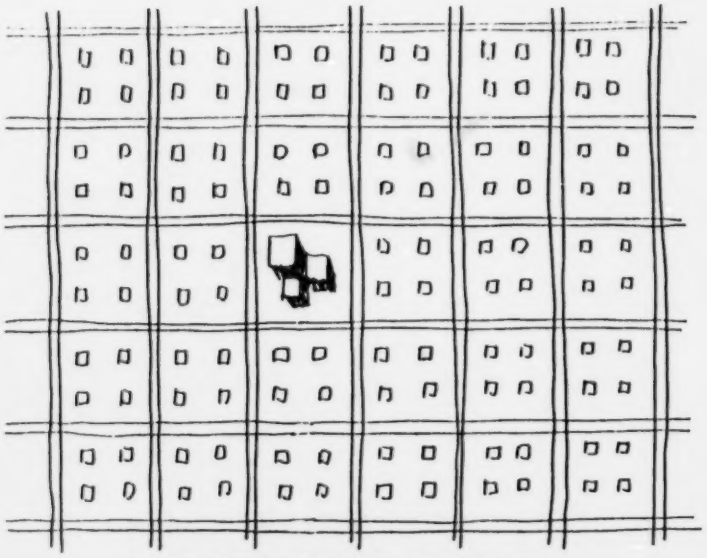
The form of the city is the result of small and large actions taken by public and private groups. Behind the actions are images of good environments, and it makes a difference whether these are winter or summer conceptions. A recreation centre set away from the street and distant from passing bus routes represents the summer city. Designed so that its entrance can serve as a waiting area and located behind the public library and shopping centre, we have the outlines of a winter city. Building a winter city requires an initial reappraisal of standards and conventional ways of organizing things.

Compactness is a virtue. Organizing facilities for one-stop usage, and especially at points where there is more than one form of access, increases their reach.



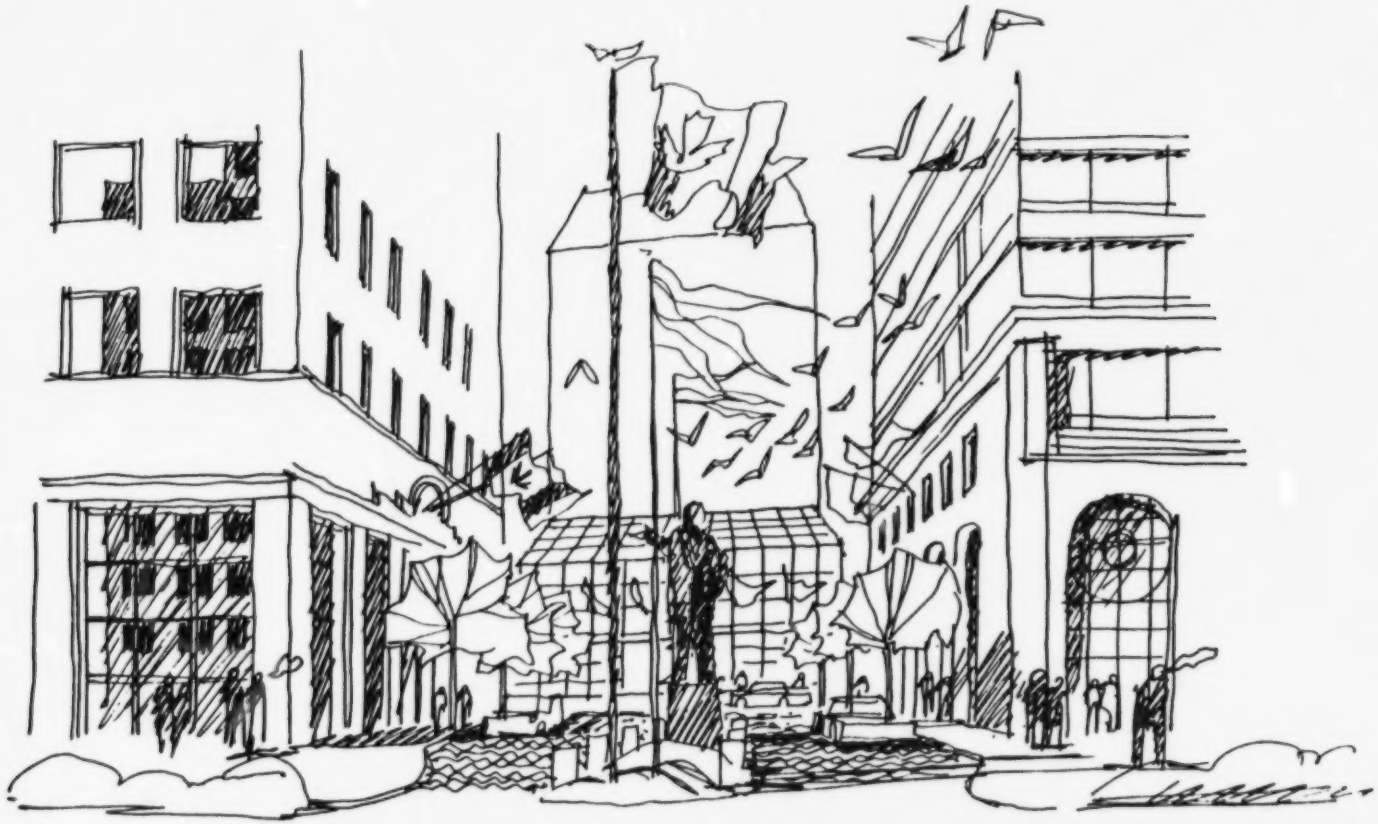
Encourage dual use of indoor spaces. Rather than constructing bus shelters a few feet from the entrance to a corner drug store, or from the entrance to a shopping arcade or office building lobby, require the business to construct and maintain spaces large enough for waiting. Or, organize schools and recreation centres and outdoor rinks so that heated lobbies are shared.

Multi-use centres in the suburbs save travel and reduce isolation. Adding workplaces, churches and institutions to shopping centres is a positive step.



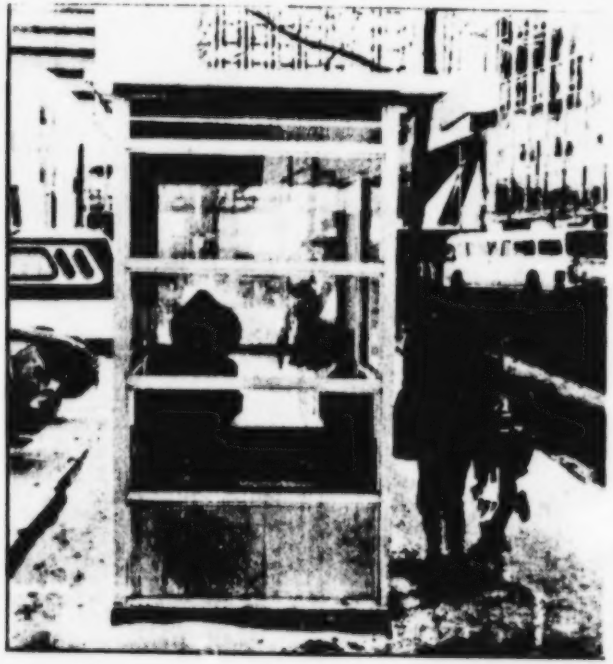
A NEIGHBORHOOD CENTER

HEATED SHELTER, DAY CARE, CAR POOL PICKUP, BUS STOP, RECREATION, ELDERLY CENTER, SOCIAL CENTER, SKATING, NEIGHBORHOOD THEATRE, HOBBY SHOP, ADULT EDUCATION, COUNSELLING, HEALTH CLUB, SCOUTS, LIBRARY, PREVENTIVE MEDICINE CENTER, NEIGHBORHOOD ASSOCIATION HEADQUARTERS ETC.





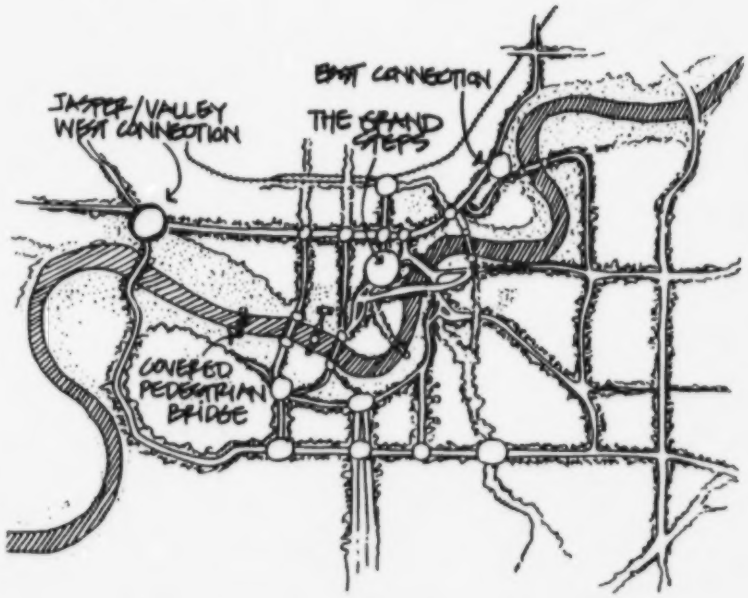
THROUGH URBAN DESIGN, GROUPS OF BUILDINGS CAN BREAK THE URBAN STREET GRID AND CONTROL THEIR OWN ENVIRONMENT: COURTS, CONCOURSES, PUBLIC/CIVIC ART, BUILDING FACADES.



In summer, green open spaces give relief to the city pattern; in winter the world seems much more continuous. There is a need to mark points in the city pattern, through environmental art, or by emphasizing natural breaks such as the edge of an escarpments through year-round landscaping. At night, lighting needs to reinforce the city pattern in similar ways.

In order to orchestrate the incremental growth of the city, there is a need to develop a shared image of its underlying organizational structure. An image which reflects the value and priorities of the community.

THROUGH BLOCK ACCESS CAN EXTEND RETAIL FRONTAGE, MEETING PLACES, AND PROVIDE BUS SHELTER.



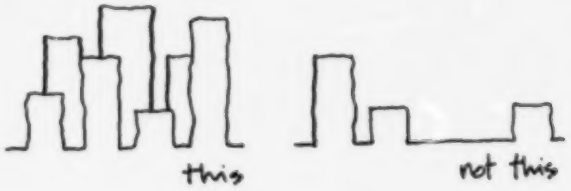
## DOWNTOWN PEDESTRIAN CIRCULATION

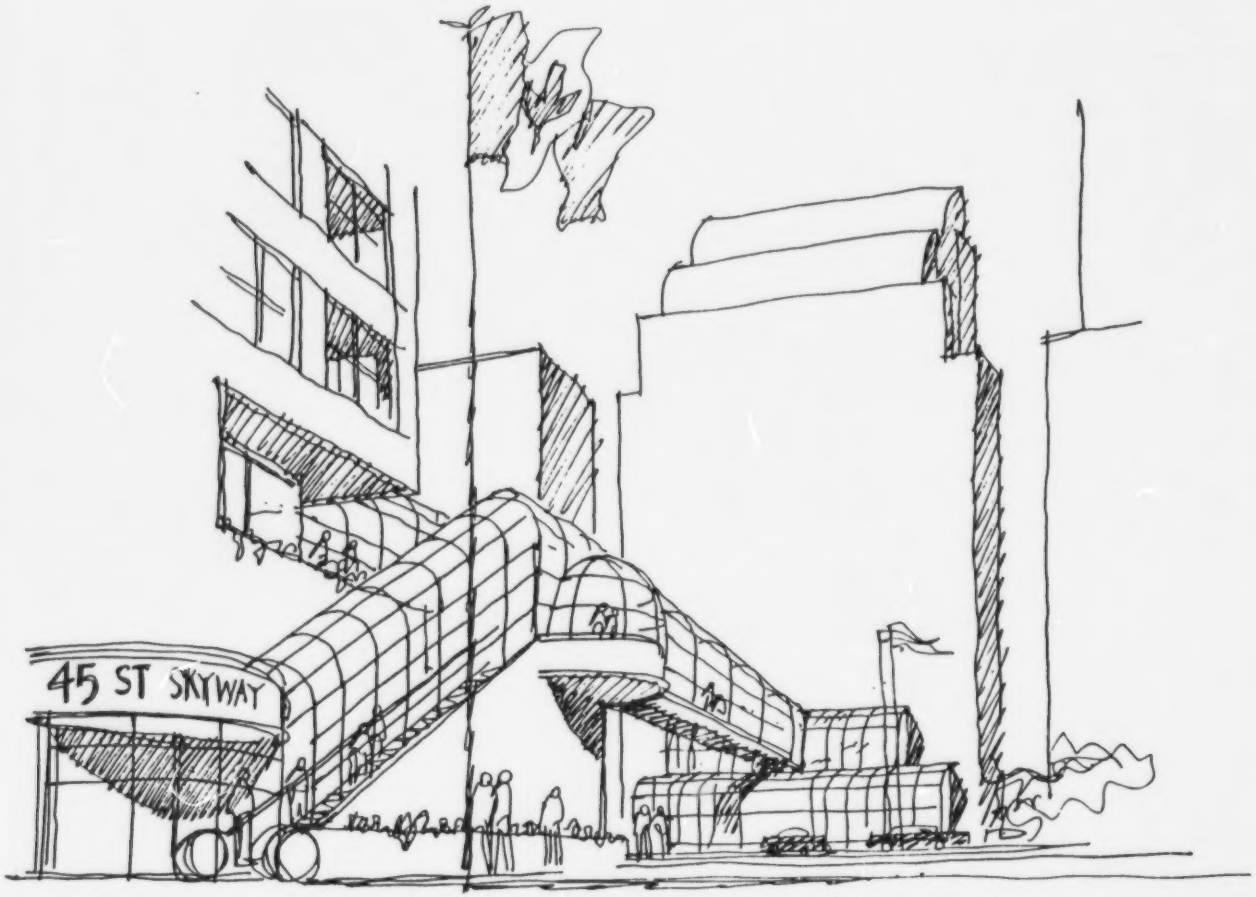
The dramatic seasonal change in winter cities make the experience of public spaces richer for the pedestrian, because patterns of use change from season to season. Creating both an indoor and outdoor cirulation system, and space for gathering and leisure in winter, as well as summer, requires careful planning and a greater investment than in temperate cities. We suggest principles to guide this effort:

The summer and winter pedestrian systems and spaces should be well integrated, and frequently connected, to optimize choice and year-around use of both.

Grade-separated indoor circulation systems must be continuous and must connect key origins to destinations.

Land use controls must encourage adequate building density to have continuous activity along indoor circulation routes.






WHERE POSSIBLE EMBELLISH THE SKYWAY SYSTEM WITH CLEAR ENTRANCE/EXIT POINTS AND INTEGRATE WITH BUILDING DESIGN ELEMENTS.

Indoor and outdoor systems should be connected in highly legible ways. The contact points should be visible, and vertical circulation between indoor and outdoor pedestrian systems must be convenient. Indoor circulation systems should provide views to the outdoors for orientation.

Indoor/outdoor transition spaces should be recognized and treated as important winter activity zones.

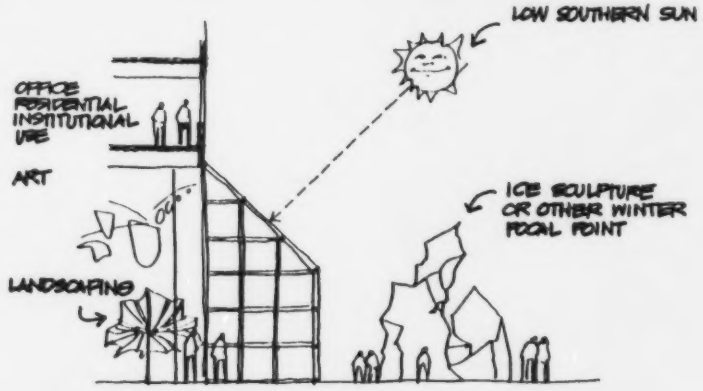
Important indoor public spaces should occur along, and be connected by, the public indoor circulation system.

The winter city pedestrian movement system should be as uninterrupted as possible. Where there are conflicts with vehicles, a special effort should be made to assure pedestrian priority. Raised and well-marked pedestrian crosswalks and extended green light periods should be employed.

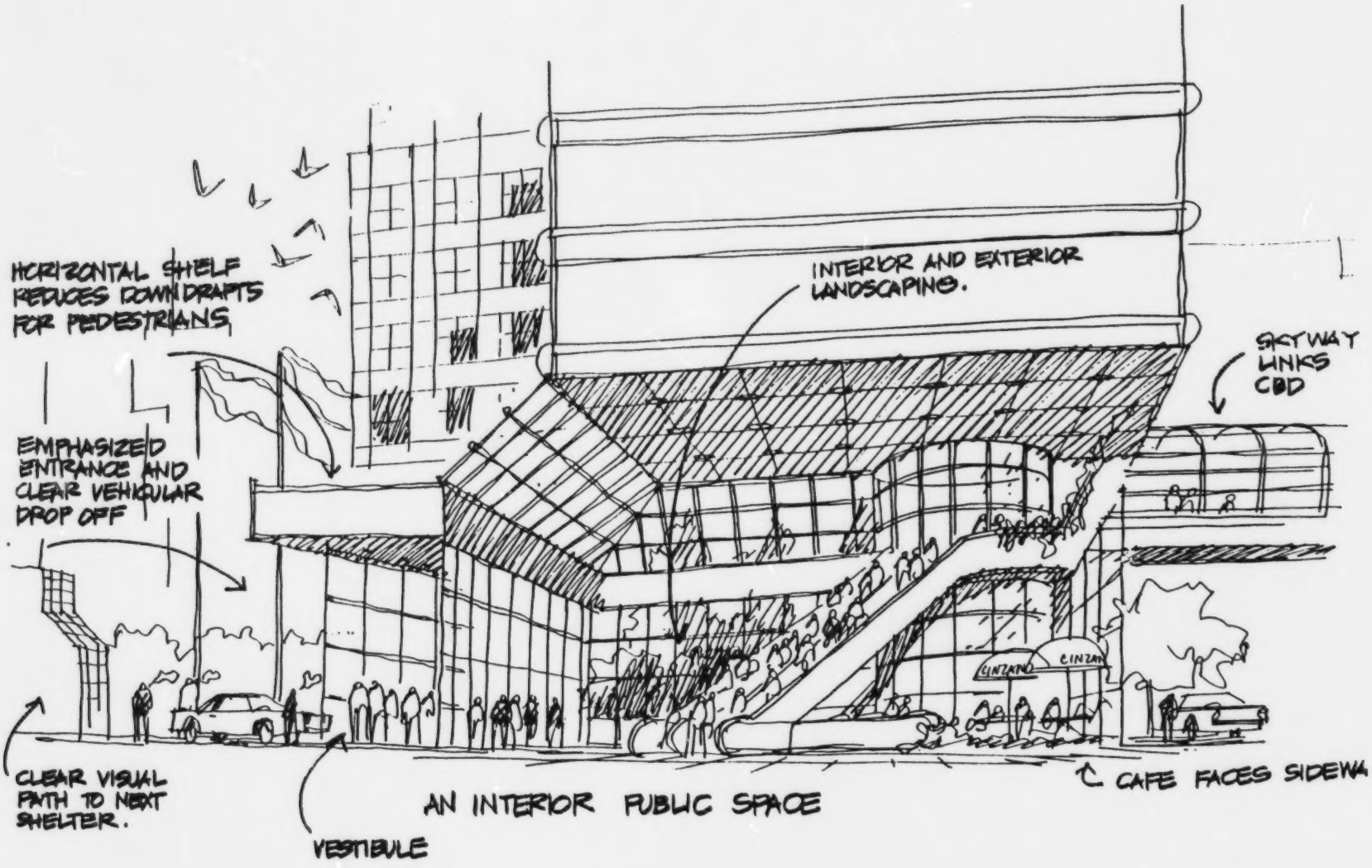
Indoor public spaces should accommodate a wide variety of activities to encourage public uses similar to outdoor summer uses.

When possible, indoor public spaces should be readily accessible to outdoor public spaces and circulation systems.

Indoor public spaces should have direct sunlight through at least part of the day, and reflect sunlight to increase daylight.




BUILDING ENTRANCE DESIGN CRITERIA FOR SELECTED BUILDINGS.


HORIZONTAL SHELF REDUCES DOWNDRAFTS FOR PEDESTRIANS
INTERIOR AND EXTERIOR LANDSCAPING.
SKYWAY LINKS CBD
EMPHASIZED ENTRANCE AND CLEAR VEHICULAR DROP OFF
CINZANO
CINZANO
CLEAR VISUAL PATH TO NEXT SHELTER.
AN INTERIOR PUBLIC SPACE
CAFE FACES SIDEWA
VESTIBULE

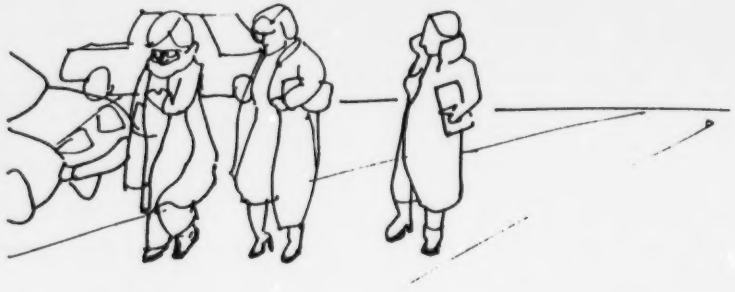
**SAFETY**

The severity of the Winter Cities' climate, and the long hours of darkness, put its citizens at greater risk. Some special design features which can help reduce the risk are:

Paving texture - relief patterns and textured paving should be used to improve the grip in snow and icy conditions.

Night lighting - pedestrian paths should be well lit. At points of transition and intersections where decisions must be made, there should be higher light levels.

Vertical transitions - the connections between different levels of the pedestrian movement system should be as protected as possible. In the case of outside stairs, special attention should be given to tread width and texture, to ensure that snow build-up and slippery feet are accommodated.



ice people — the winter pedestrian

STREET LIGHTING WITH POOLS OF LIGHT AND PIN LIGHTS IN TREES.

# DESIGN CONSIDERATIONS FOR

| | CLIMATIC CONDITIONS | OWNERSHIP |
|---|---|---|
| PLAZAS | • avoid glare on ceremony | • public/private |
| PARKS | • need solar, access<br>• urban wind problems - snowdrifts | • public |
| BOULEVARDS | • north/south streets get more sun<br>• protect promenade from wind | • very public |
| BUS STOPS | • warm place in sun<br>• wind protection required<br>• snow/rain protection required | • public |
| SIDE WALKS | • east/west streets and sidewalks in shade in winter<br>• tendancy for channelled winds<br>• shelter sidewalks from snow/rain | • public |
| ENTRY WAYS | • tendancy for channelled winds<br>• shelter doorway from snow/rain | • public/private |
| LOBBIES | • controlled climate - interior | • private |
| ATRIA | • possible glare/over-heating from sun | • private |
| SUBWAY STOPS | • slippery subway stairs?<br>• skylights possible | • public |
| SUB-GRADE CONCOURSE | • reduce cold, damp & dark | • public/private |
| 2ND LEVEL CONCOURSE | • possible over heating from sun | • public/private |
| ROOF TOPS | • height = stronger winds<br>• shed rain from building | • private |

# PUBLIC SPACES IN WINTER CITIES

| DESIGN PROGRAM | AMENITY | EXTERNAL RELATIONSHIP |
|---|---|---|
| • assembly | • observe, congregate, address | formal urban room |
| • contrast | • passive park: retreat<br>• active park: exercise, socialize | • nature between bldgs. |
| • linear celebration | promenade, observe | formal urban corridor |
| • foot ↔ bus | • rest, wait, socialize, read | • city graphics, schedules & route information<br>• prefab of extg. buildings |
| • pedestrian transit | • rest, circulate, wait, interact, shop, people-watch, eat socialize | • linear space |
| • transition | • introduction to building | • welcoming gesture to street |
| • transition, orientation | • inform, circulate, interact socialize, rest | • building focus |
| • retreat, contrast | • rest, wait, interact, socialize, perform, observe | • nature inside a building |
| • foot ↔ rail | • rest, wait, socialize, read | • street-subway links easily recognized |
| • connection between nodes | • circulate, potential for other activities | • linear, sub-grade connector |
| • connection between nodes | • circulate, potential for other activities | • linear, elevated connector |
| • provide another outdoor floor | • views, potential for other activities | • above grade, open to sky |

# SHARING THE RESPONSIBILITY

Given the framework of goals and objectives provided by a community-developed Agenda for a Winter City, it is necessary to address the planning, design, implementation and management issues which must be resolved in order to achieve these objectives. We argue that planning, design, implementation and management activities also require a collaborative, cooperative process among the major actors in urban development. The urban environment is the result of a large number of decisions taken by governments, particularly local governments, private sector actors, particularly the development and building industry, and by citizens in their decisions in how they use that environment. If the city is the collective consequence of their individual decisions, then they share a responsibility for that consequence and they should be actively involved in formal efforts to achieve a planned result.



## PLANNING AND DESIGN

The traditional process for incorporating these interests in civic planning and design activities is inadequate to the achievement of the objectives of a Winter City Agenda. In this process, plans and design guidelines were largely prepared by local governments, occasionally with modest input from citizen's groups and they seldomly involved consultation with the private sector. The achievement of civic objectives, themselves often unilaterally determined, were attempted through a complex system of regulations, direct controls and incentives such as tax relief, development rights transfer and bonusing schemes. The development and building industry frequently found itself in an adversarial role vis a vis local government, their creative energies often diverted toward efforts to beat the system or lobby around it. Citizens were almost always left to react to the compromise decisions reached by government and the private sector.

We believe that an acceptance of a shared responsibility for the form and quality of the urban environment in general and, in particular, as this relates to the achievement of the objectives of a Winter City Agenda, lead to a cooperative planning and design process. This does not imply that the traditional planning instruments of control and incentive referred to above will not be employed; rather, it implies that the ends toward which such means are applied should be cooperatively determined at a fairly high degree of detail, not unilaterally imposed. This process, which involves the active cooperation of the public sector, private economic interests, and citizens, in planning and in the development of design guidelines and criteria, should operate at two distinct levels.

**THE CITY AS A WHOLE**

At the first level, the emphasis is on the development of plans and design criteria at a general level; this is the level of the city as a whole and specific, designated areas within the city, e.g., the downtown, a neighbourhood, etc. The creation of a general set of planning objectives, procedures and requirements ensures a high degree of coherence and consistency, across the city as a whole, in decisions relevant to the achievement of broad Winter City objectives. Examples of the kinds of decisions which this general planning and design framework would guide are gross land use allocations, subdivision and transportation network design, the location of public facilities and open spaces, desirable connections between buildings and spaces, the location of private activities and signage.

Participation in a cooperative planning process at this level of generality should also be fairly broadly - based. At this level, few specific community or private sector special interests are engaged and it should be possible for local government planners to obtain the participation and cooperation of representatives of the private sector and citizens whose interests and concerns are with the whole city as a Winter City. Federations of community associations, small business associations and service organizations of various kinds are examples of groups which are a likely source of valuable participation at this level.

## DISTRICTS AND NEIGHBORHOODS

As one moves to a lower level of generality, i.e., to the area, district or neighbourhood level, the specific opportunities and problems and the particular interests affected become much more sharply defined. The composition of the participants in a cooperative planning and design control process becomes similarly more clearly identified. The relevant planning and design issues involve such matters as neighbourhood improvements, public sector infrastructure and facility improvements, three dimensional massing diagrams, area-specific transportation decisions (e.g. public transit schedules), and particular private facility developments. Cooperative planning at this level involves actors such as neighbourhood or district planners, local economic interests and the proponents of specific developments and representatives of specific neighbourhoods or community associations.

**DOWNTOWNS**

If the specific area in question is the downtown, then formal organizations representing either community or private sector interests may have to be created, if they do not exist, in order to ensure their organized participation in a cooperative planning effort. The downtown is a unique area; it is the economic, social and cultural heart of the city and its role is absolutely critical to the attainment of a set of Winter City objectives. As such, it requires special effort and treatment. Cities need to assemble planning and design teams with particular responsibilty for the downtown; and, the private sector, particularly the development and building industry, need to organize themselves for formal participation in planning and design decisions respecting the downtown. Privately funded, and sometimes jointly funded downtown Development Committees, for example, provide a splendid opportunity to secure the participation of the private sector.

**INDIVIDUAL PROJECTS**

The lowest level of generality - or highest level of specificity - involves the individual project. And, at this level, cooperation, rather than an adversarial relationship, between project proponent and the public sector should also obtain.

It is the individual project which translates policy, planning and design principles into physical reality and it is the physical reality which, in turn, ultimately determines the fidelity of an urban environment to a set of Winter City objectives. The joint effort and commitment of public planners and project developers to produce a

result which contributes to these larger objectives can generate a synergy which is not possible if they pursue their individual objectives as two solitudes.

It is in the action-reaction, suggestion-response, proposal-critique, give and take environment of a cooperative planning and design effort that project proponents can be made to see that modest changes in design detail or programmed activity can contribute to a larger civic objective without undermining, indeed, perhaps enhancing, their private economic interests. Similarly, it is here that public sector planners and designers can be persuaded that variations in planning requirements or design guidelines will lead to a superior Winter City outcome. It is also at this level that the interaction between the actors can generate entirely new possibilities which transform a project from the merely acceptable to the truly significant; e.g. the idea that a few changes in project design and some additional expenditure, combined with a previously unplanned commitment of public resources, could produce a qualitatively different and superior design from a Winter City perspective.



**FLEXIBILITY IN PROCESS**

The suggestion that planning and design activities at the level of the individual project will be capable of synergy, of producing new and different as well as better results, requires that the cooperative planning and design guideline procedures discussed above are inherently flexible. The development of the urban environment is a dynamic process, one which seldom evolves smoothly or for long in the same direction. The plans and requirements of private sector actors change and, as they do, opportunities are created for the public sector to achieve a significant movement toward civic objectives. The public sector, as reflected in its planning procedures and requirements, design guidelines and implementation strategies must be flexible enough to respond opportunistically to such developments. Static plans and rigid design guidelines preclude cooperative efforts in the process of urban development, particularly when that process is intended to contribute to the achievement of those objectives set out in an Agenda for a Winter City.

**IMPLEMENTATION: DEVELOPMENT AND FUNDING**

Having put winter on the city agenda, and agreed on guidelines for key long term projects, the issues of funding, construction and management responsibility need agreement.

The actors now need to expand beyond local public officials and business community. Funding of large scale facilities and amenities will inevitably need a combination of help from the Federal Government, Provincial or State Governments, and the broader development and financial sector.

In a "Winter City", development frequently means the creation of indoor and outdoor spaces which have broad popular appeal and which provide convenience and beauty to city employees, residents and visitors. These are public-private places where the city benefits from having year-round public spaces, downtown businesses benefit from the draw of these spaces and facilities, and the developer and property interests benefit from the economic advantage that flows from attractive and functional public facilities.

Northern cities typically require more innovative institutional arrangements to carry out mixed use developments. Design costs are increased by severe climatic conditions, and multiple purposes require more flexibility in paying for security. There are numerous examples from Canadian and U.S. cities.

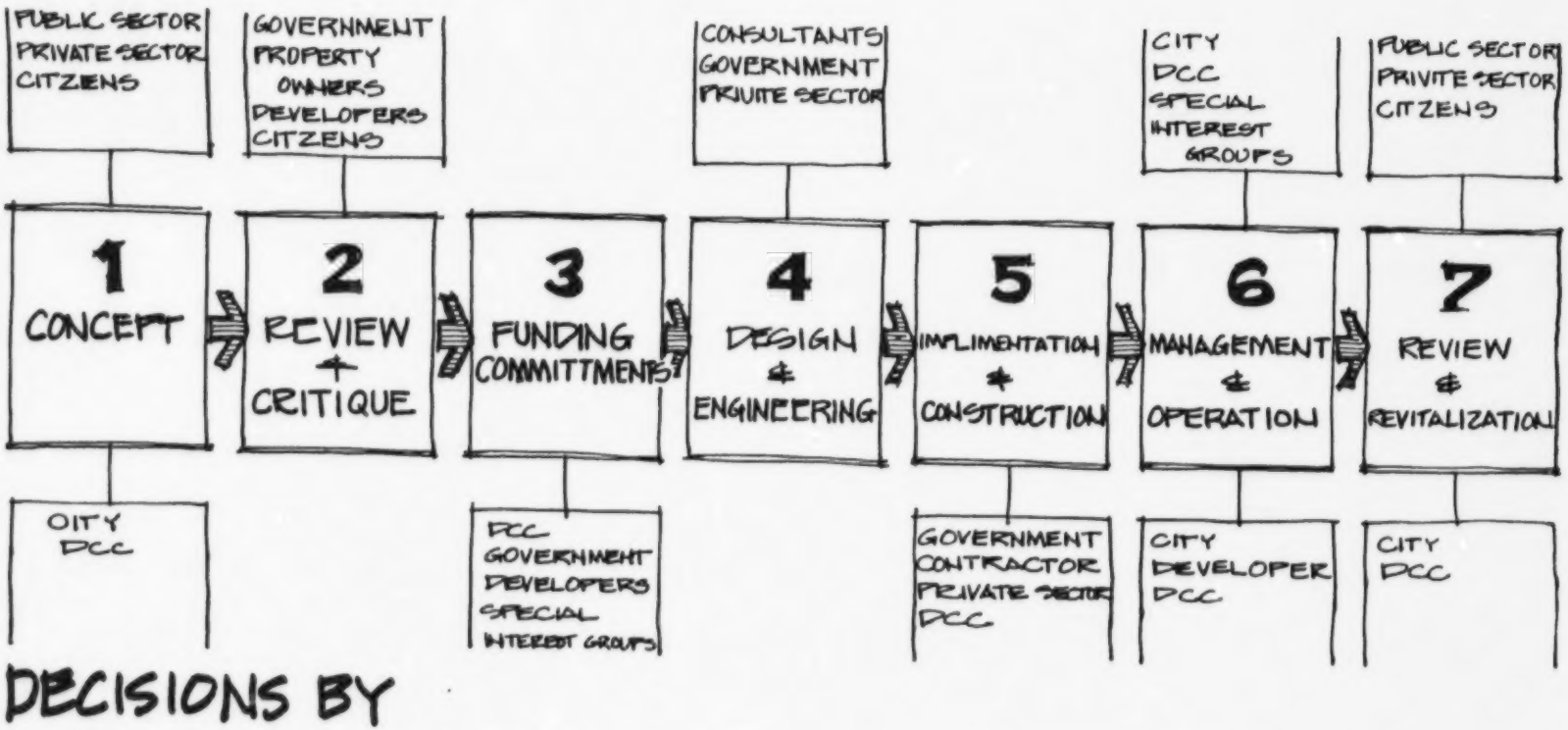
In Toronto, multi-level public funding combined with private capital to produce the Harbourfront development on Lake Ontario. The development maximizes interaction with the lakefront while providing space inside for year round activities.

In Winnipeg, a development under construction on Portage Avenue as part of downtown renewal stresses an integrated pattern of public spaces, housing and existing buildings. The North Portage Development Corporation, a special tri-level government organization is responsible for the initiative.

The Devonian Gardens in the centre of Calgary is a privately-constructed public space, one block in area, "plus 45" above street level, partially enclosed, with skating rink, gardens and decorative pools, all maintained by the city. In return, the builder was given higher density development rights. Pedestrians have indoor access to several blocks of retail activity.

How to choose the right arrangement? In the past, public work projects in downtown were initiated and funded by the city. The private sector traditionally reacted to proposals made by the public planners, often too late to shape the outcome. More recently, the private sector has constructed public areas, directly participating with the city in the improvement of streetscapes, skywalks, permanent open spaces, works of art and other desirable community spaces and facilities. Adjacent developers or property owners should also be party to the design and financing strategy.

Design costs can typically be funded from a variety of public and private sources. Construction funding, however, is more complex. An issue which must be resolved early is clientship:






CREATING A WINTER CITY PROJECT SEVEN STEPS TO SUCCESS

- Having the city implement an agreed upon development project is one possibility. However, internal charges for municipal services are frequently higher than for private consulting services, and ordinary city processes often extend project completion dates.

- The local downtown development group or a non-profit development corporation can act on behalf of the partnership. However, that organization must have the experience and sophistication required to complete design and construction within time and monetary constraints. It also requires significant financial backup in the event of budget overruns.

- The developer/property owner normally has the ability and experience to carry out the public parts of development projects, and charge back the public costs. But, ultimately, the project must fulfill the aspirations of the other partners.

The above are alternatives which must be discussed with candor. Further, other basic issues will need to be resolved early on. Among them: Is the project to be completely on public property or will it involve a condominium relationship? Who will the project benefit beyond the immediately adjacent civic and property interests, and can the funding base be spread to them or the community at large? Does the project produce economic or market benefits to the detriment of other parts of the city? Is the public project an end product or the beginning of a series of actions extending beyond the immediate agenda?

Assuming that many of these issues will have been resolved before and during project design, appropriate funding mechanisms can be engaged. Ordinarily, however, the budget and sources of capital will have been agreed to before the final designs are completed.

There are many financing strategies. For example: The municipality or public agency designs and builds facilities with previously budgeted capital or anticipated bond revenue; the local downtown organization raises funds through donations, the sale of investment shares or through private sector loans; the developer/property owner funds development of public facilities through private sector loans, public sector grants or through available capital reserves.

The recovery issue, or the need for it, is also important, unless there is no desire or expectation to recoup public investments. Many communities have struggled with the payback issue, particularly as grants from higher governments and available public capital have become scarcer, requiring that cities "roll over" their public improvement investment dollars. For example, recoveries can be accomplished by leasing public facilities and spaces to the private sector, obtaining a percentage of private project revenues as payment for services and facilities provided, creating special assessment districts which repay public investments over an extended period, fees and the allocation of new property tax revenue from new projects and improvements.

There are no set formulas guiding the funding, design, engineering and construction of public facilities and spaces. The essential ingredients are cooperative action and attitudes,and an understanding that, in combination, the public and private sector can accomplish more than the simple addition of their efforts.

**MANAGEMENT AND OPERATIONS: THE LONG PULL**

We have all seen large and often exotic public spaces and facilities in poor condition or with limited use. The fact that one generation of designers and developers produces sensitive public spaces and facilities does not guarantee its long term maintenance, programming and repair.

Limitations on local public resources at all levels of government have demanded new attitudes toward maintaining and operating public spaces. Security issues, constantly changing public goals and personalities, and the need to react quickly to changing conditions have encouraged an expanded role for the private sector. This is especially appropriate for skywalks, pedestrian promenades, vest pocket parks and enclosed public spaces in private development projects, where the capacity to maintain and manage is already in place.



The public sector must set basic performance standards for use and maintenance if they are involved in funding. Meanwhile, the private sector responsibility can focus on the use, security and maintenance of public spaces and assure a level of attention to them beyond the usual capacity of the public sector, specifically:

- When spaces are maintained by the public sector they must compete for funds with other maintenance projects. The private sector can supplement city resources and personnel out of enlightened self-interest, and to the larger benefit of the community.

- Well-used public areas require a higher budget for maintenance and repair than typical open spaces, a fact usually not anticipated far enough in advance by the city. Deferred maintenance and patchwork repair often is the result. The private sector tends to think in longer terms.

- The cost of constructing and funding semi-public facilities can often be lowered by incorporating them in larger projects, with repayment from public funds or through special assessments.

Examples of the successful private operation and maintenance of significant public spaces are numerous. To name a few:

- In Denver, CO the city built the 16th Street Transit Mall using a major federal grant. The City guarantees a base level of funding for operation of the mall and transit service. A non-profit management corporation carries out management and a special assessment district provides more than double the city funds annually for higher level maintenance, more frequent transit service, and promoting and programming mall activities.

- In Milwaukee, WI. the city funded two parking garages and a 100,000 square foot public pedestrian promenade with a federal grant and tax allocation bonds. The city contracted with the local business development corporation to design and build the pedestrian mall within a guaranteed maximum price. The city leases the completed spaces to the operator of adjacent retail space for a token amount, but requires that the private developer assume all costs for security, maintenance and operation, while also setting aside funds annually for repair and replacement. Common area charges to retail tenants, adjacent department stores, and office buildings provide funding for a high level of maintenance.

- In St. Johns, N.B., The Market Square Corporation, a tri-level entity, contracted with a private developer to build a mixed use complex containing a convention centre, library, retail spaces, office and hotel, and an indoor atrium. Funds were pooled for construction from public and private sources; maintenance costs are shared among them, with the Corporation responsible for maintenance.

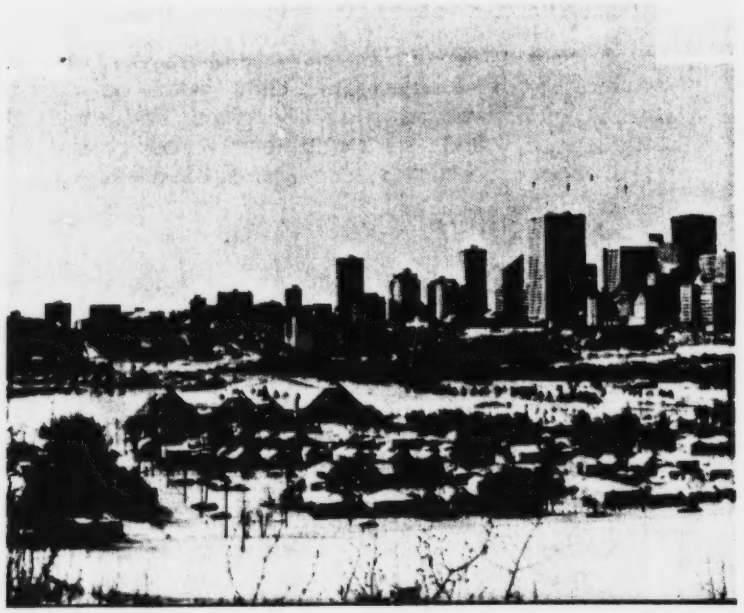
The Winter Cities attitude requires a commitment to the design, development and management of public spaces year around. The more successful in stimulating use of public spaces, the more will be required for maintenance, security and repair. Year around use of public spaces, including expanded weekend and evening use, further increases the amount of investment necessary. The lines of benefit can never be drawn precisely around public or private entities. A formula for sharing in responsibility reflecting the capabilities of the parties must be developed well in advance.

## IN EDMONTON...

Converging forces bode well for the future of central Edmonton. The emergence of the Winter Cities Conference Corporation and the enthusiastic response to the Winter City theme is parallel to the private sector funding and support of the Downtown Development Corporation. Public funding must follow. The R/UDAT team heard testimony that there will be a downtown coordinator on City of Edmonton staff assigned directly to the City Manager's Office but not part of any other division or agency of government.

And, last but not least, the publication of A Blue Print for the 21st Century, the August 1984 report to the Mayor from the Task Force on the Heart of the City, sets the tone for a series of complementary actions which, if accomplished, can catapult central Edmonton into a position of pre-eminence among Winter Cities.

The Winter Cities overlay as a guiding theme is particularly important. The emphasis that Edmonton has placed on this idea makes this city unique, and far and away more advanced in creating a self-image which will undoubtedly by translated into an international image in the years to come.



ESTABLISHING THE AGENDA

Edmonton's Blue Print for the 21st Century is the beginning of a dialogue that must be continued. R/UDAT confirmed many of the plans and ideas now in discussion, and suggests early consideration of vital short term projects and attitudes.

1. OVERALL IMAGE

Density. The core of downtown is today a relatively compact district of high rise buildings developed in recent history around early 20th century smaller structures. The result is a loosely-knit central area adjacent to Jasper Avenue. A "Z" shaped form results from the suggestion that government and major public open spaces are the anchoring elements.

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Consequently new development in the near term should be concentrated along Jasper Avenue, along 108th Street south of Jasper Avenue to the Legislative Grounds, and around Churchill Square. A powerful, dense and integrated central business district is the goal.

Future development will undoubtedly take place to the north and south. The railroad area and the river front are important areas for expansion and supporting developments, but the near-term focus must be on connecting and filling in the city core.

2. CITY MOVEMENT SYSTEMS

The in-place LRT, and the fact that it is free within downtown, is an extraordinary manifestation of a state of the art transit type. Once one reaches street level, however, the Winter City demonstrates the difficulty of moving along Jasper Avenue as a pedestrian.

The distances from LRT stations to other destination points along Jasper Avenue require pedestrian connections of an innovative type, using the Winter Cities theme as the guide to planning and development. The focus here is on a multi-layered system:

- The LRT, in place.
- Surface public transit on Jasper Avenue should be free and frequent.
- The Plus 15 system should be developed as perpendicular to Jasper Avenue, connecting buidings and functions off the Avenue through existing retail buidings and lobbies at street level.
- So too should grade level pedestrian ways such as Rice Howard Way be developed.
- Underground pedestrian ways are in place. These should become part of a comprehensive overlay of alternative systems, and encourged to a limited degree, sunlit connections of a highly visible nature must be the theme.

What about Jasper Avenue? Edmonton should design the Avenue as its premier street focusing on issues of:

- The location and function of public transit below ground and at grade level.
- The extent and quality of pedestrian sidewalks.
- Shelter from the wind.
- Heated districts in each block when the temperature is below 0°F.
- An integration of protected transit shelters within and adjacent to buildings.
- Covering and enclosing now useless quasi-public open outdoor spaces adjoining the lobbies of new office buildings and making these spaces indoor/outdoor restaurants and cafes for winter and summer use.
- Landscaping indigenous to Edmonton.
- Signage describing the multi-level pedestrian and public transit system and the location of major features of downtown.

3. LINKING INDOOR AND OUT

A mixture of uses - Edmonton already has virtually every function required of a great central city. Cultural and convention facilities, governmental buildings, outdoor park spaces, office, residential and hotel structures, and retailing abound over a 20 to 30 square block district.

But the disproportion of uses and functions and their lack of connection has diminished the real function of the central city which is to entertain people, to attract shoppers, to make each turn in the road a delight to the eye, to make each trip to downtown fun and convenient.

How can this be accomplished? Here are some random but considered thoughts by the R/UDAT team:

- Emphasize retailing of all types. Promote new high quality retail in well located projects, particularly at grade level, and connect these projects to their surroundings and Jasper Avenue at both the Plus 15 and street grade level.

  Above all, maintain the presence and position of department stores along Jasper Avenue.

  Promote the renovation and re-occupancy of retailing along Jasper Avenue in conjunction with interior and exterior pedestrian connections.
- Create a blend of inter-connected indoor and outdoor spaces of high quality.
- Encourage new hotel and residential uses integrated with ground level activities.
- Recapture the river front as a primary outdoor activity center and connect it to the downtown with stairs, trams and other highly visible winter and summer modes.
- Program the indoor and outdoor spaces with events for all age groups.
- Enrich the outdoor spaces with public and private features like skating rinks, warming huts, cafes and exhibit areas.
- Establish LRT connections to city neighborhoods and the University.

4. USES, EVENTS AND ACTIVITIES

By definition "Downtown" has the widest variety of options. Central Edmonton has theaters, museums, retailing, skating rinks, historic buidings, public enclosed atriums, hotels and residences.

It does not have central management, common operating hours, cooperative promotion, consistent standards of quality and pedestrian convenience.

Previous pages reported on creating a positive physical image for downtown and emphasizing access and mobility throughout. There are three distinct and equally important zones on which to build a constituency and greater utilization of the downtown:



- Churchill Square
- Legislative Grounds
- Jasper Avenue

There are other no less important districts like Rice Howard Way, 104th Street and others which play an important supporting role for the central theme places.

Setting aside the essential physical improvements required to establish these three areas as desirable outdoor spaces, there is also a genuine need to create a consistent vehicle for the of use and promotion of the spaces. Some ideas suggested include:

- Outdoor/indoor cafes.
- A consistent wall of penetrable spaces along Jasper Avenue where one can find activities inside in winter and outside in summer.
- Winter celebrations, summer concerts.
- Farmers Markets year arouno.
- Informational banners and signage announcing and celebrating monthly events throughout downtown.
- "Moveable Feasts" promoting use of a wider range of already inplace public and private spaces.
- Historic building and atrium tours.
- Use of roof tops as observation decks.

The objective is obvious. Edmonton has to be as convenient, as consistent, as predictable and even more exciting than a shopping centre or a festival marketplace. It can be so.

SHARING THE RESPONSIBILITY

Several essential principles are required for real accomplishment:

- The design and funding institutions have to be created.
- Funding has to be assured for the long-term.
- The personalities involved in the public and private sector must be compatible.
- The agenda must be agreed upon and mutual goals and timetables established.
- Participation, cooperation and enthusiasm must be guaranteed at every level of government and citizenry.

Who leads? The Mayor, as the chief executive officer of Edmonton is clearly in charge. And, as a capitol city, Edmonton has a special opportunity to entice investment and support from the Legislature. Federal support is anticipated.

But government can only do so much. Our communities are predominantly privately owned and developed buildings adjoining public spaces. The second half of the 20th Century is replete with examples of successful "bootstrap" efforts accomplishing downtown revitalization. Denver, Calgary, San Diego, Toronto, Milwaukee and Vancouver all conjur up special images. Edmonton can as well, but only through the close cooperation and dedication of resources of both the public and private sector.

Edmonton has taken several first steps toward creating vital organizations which focus on downtown's future. The Winter Cities Convention Corporation and the Downtown Development Corporation supplement governmental agencies and provide a cadre of leadership that was, perhaps, dormant in recent years.

Lack of money is never the ultimate problem nor can it be the reason for inaction. The unwillingness to seek new cooperative solutions for community betterment has been the deterent to action in other cities. Edmonton's portfolio of central city components, underpinned by a comprehensive public transit and roadway access system, and guided by enlightened leadership, is the foundation of a great Winter City.

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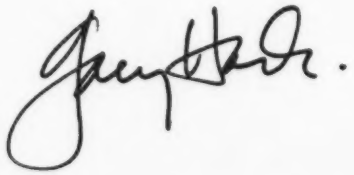

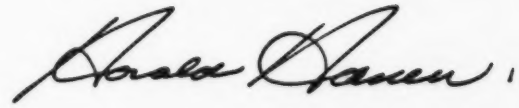



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Mr. Hack is head of the Department of Urban Studies and Planning at Massachusetts Institute of Technology and a consulting principal in Carr Lynch Associates, Cambridge, Massachsetts. Educated as an architect and planner, he has served as an urban design consultant for many cities in the United States and Canada. From 1967-69, he was head of planning for Gruen Associates, New York, and from 1975-78, he headed the Canadian government's research and demonstration program in housing and urban development. Professor Hack has lectured widely and is the co-author of Site Planning: Lessons from Local Experience and a number of articles on urban design. He was responsible for the revitalization plans for central Louisville, Kentucky, the Detroit East Riverfront, and four waterfront development areas in Canadian cities.

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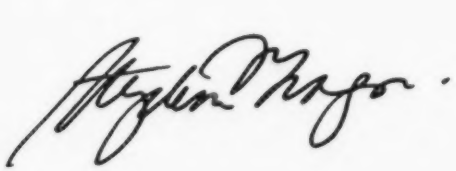
Mr. Hanen is president of Harold Hanen and Associates, a Calgary based group of urban planners and architects. His many consulting activities have ranged from the inception and development of Calgary's very successful "+ 15" skywalk system, to urban planning for the City of Ningbo, China.

In addition to his practice Mr. Hanen is guest lecturer in Urban Planning at the Unversity of Calgary, and serves as a member of various business and public committees.

Formerly, he was Head of Design Implementation with the City of Calgary Planning Department, and Consultant to the Province of Alberta on its Urban Task Force.



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Mr. Dragos is executive Vice President of the Phoenix Community Alliance, a non-profit private sector organization dedicated to the sound development of the Phoenix Central Corridor. The group recently completed a master plan for the downtown portion of the corridor. Currently the alliance is involved in the design and development of a major mixed use centre in downtown.

Prior to 1984 Mr. Dragos was executive Vice President of the Milwaukee Redevelopment Corporation. In the 1960's he was executive director of the Binghamton N.Y. Valley Development Foundation.

He is a member of the Urban Land Institute Mixed Use and Urban Development Council, and has served on ULI panels in Anchorage Alaska, Hartford Connecticut, Beaumont Texas, and Alexandria, Louisiana.

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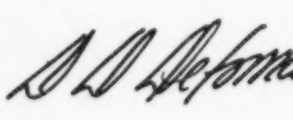
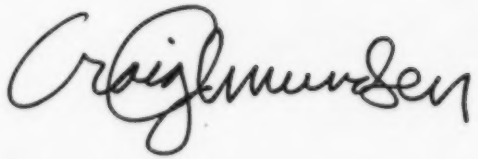
Mr. Hasselman is a design principal in Sandy and Babcock, San Francisco-based architects, planners, and interior designers. His professional career includes significant roles in a wide spectrum of urban projects, including a new town, ceremonial avenues, interstate highways, regional rail and rapid transit facilities, high-density offices, and retail, residential, and mixed-use structures.

Mr. Hasselman has been identified with AIA's R/UDAT program as a team member of 10 such studies and through his service as a member and former co-chairman of AIA's R/UDAT Committee. He has lectured before students, professionals, and community groups on timely urban topics. He is a member of AIA's Urban Planning and Design Committee.







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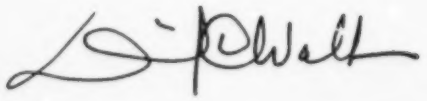

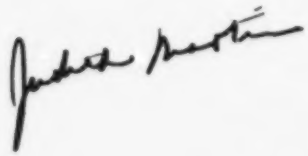

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Dr. Martin is coordinator of the Urban Studies Program at the Unversity of Minneapolis. She has been administrator of the Fullbright Program at the U. of M., and project coordinator of the Minneapolis Historic and Architectural Sites Survey.

In addition to her administrative roles Ms. Martin teaches many Urban Studies courses, and is a member of several urban issue committees.

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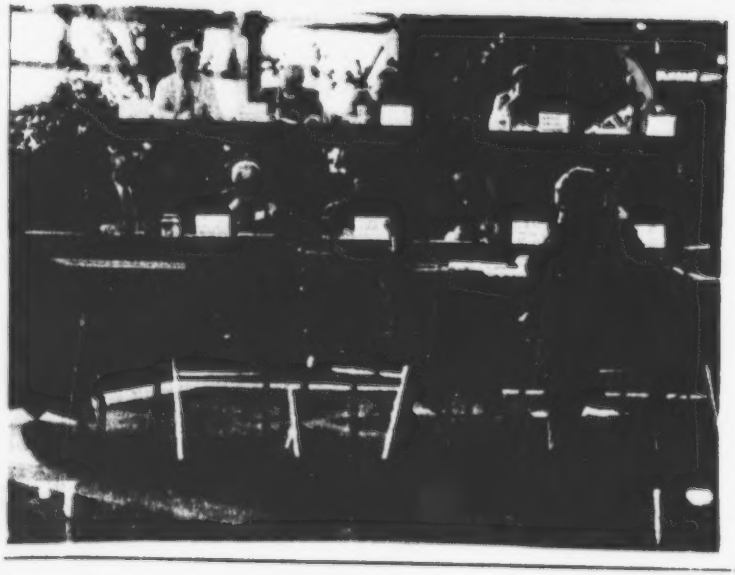
David Walker is associate professor of political science, University of Winnipeg where he has taught since 1974, and senior consultant, Angus Reid Associates.

The author of The Great Winnipeg Dream, Dr. Walker has headed up several research projects covering many public policy issues including alcohol and drug abuse, economic development, education and training, transportation, and cultural affairs. He comments regularly for the Winnipeg Free Press, C.B.C. and C.T.V. networks. He has sat on several boards including the Social Sciences and Humanities Research Council of Canada.

In 1981 he helped set up the C. Rhodes Smith Foundation designed to raise funds in Manitoba for human rights and civil liberties groups. Dr. Walker served as an advisor to the federal minister of employment, 1981-83 and the minister of transport, 1983-84. At the university he has chaired the graduate program in Public-Affairs, and Urban Studies and currently assists the vice-president (academic).

EDMONTON ALBERTA



RAIC/AIA WINTER CITIES R/UDAT 1986

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o Publications

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o Organizational Support

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**Government of Yellowknife, Northwest Territories**

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**Triple 5 Corporation**

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**Campeau Corporation**

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**Oliver Community League**

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**Chinese Benevolent Association**

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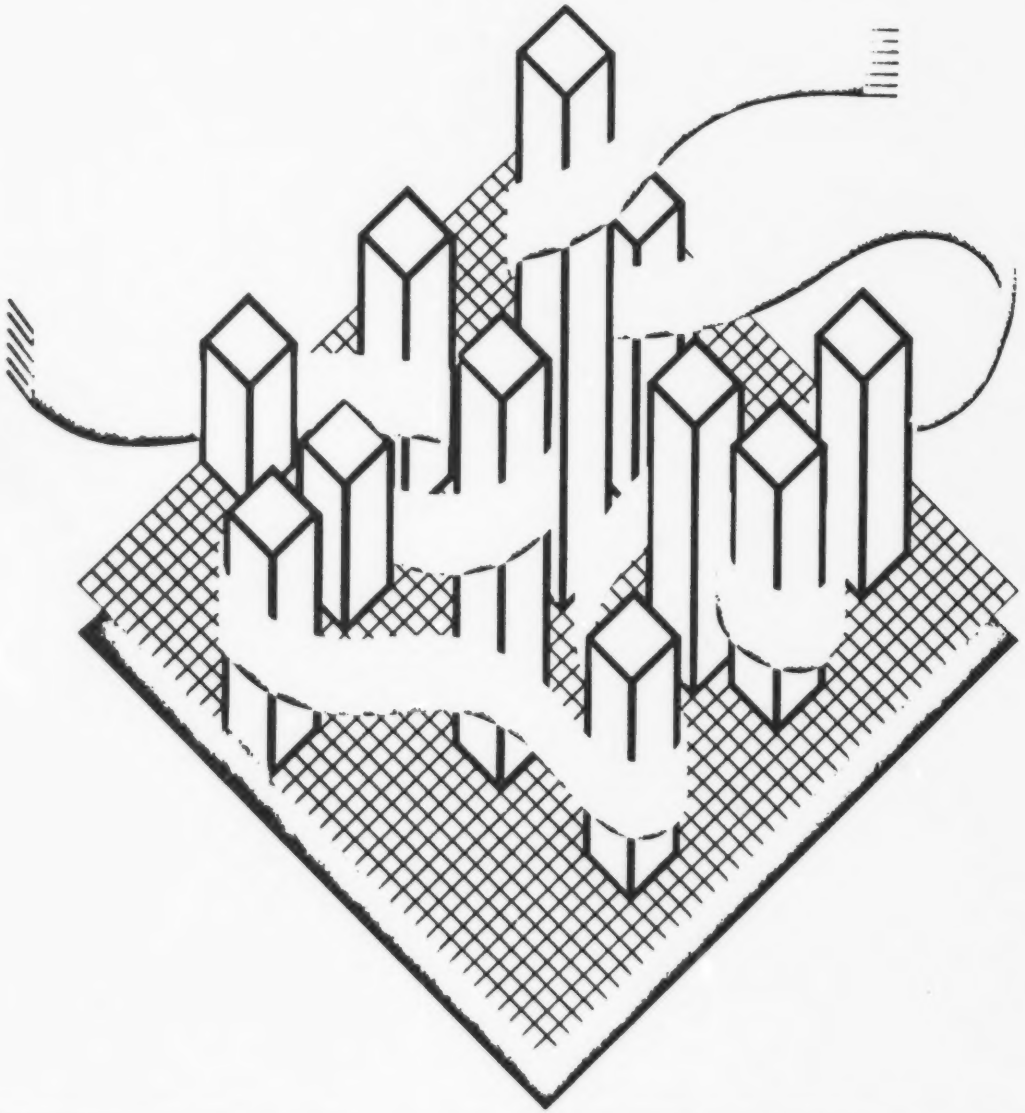
Mr. Doug Pruden

### Special Acknowledgement

The members of the R/UDAT team also wishes to express their personal thanks for the hospitality of the host committee, especially to the partners and staff of Eldred Barr, Architects Planners & Interior Designers for the use of their offices and facilities for the duration of the study effort.

MY FRIEND,
I HOPE YOU REALIZE
THAT YOUR SPELLING
IS
ATROCIOUS...
ELDRED
BUSBY

EDMONTON ALBERTA





RAIC/AIA WINTER CITIES R/UDAT 1986

# APPENDIX

**MAJOR NORTH AMERICAN WINTER CITIES**

Climatic Statistics and Character Sketches are given for the following 20 North American Cities:

| CANADA | USA |
|---|---|
| 1. Kamloops | 11. Anchorage |
| 2. Whitehorse | 12. Billings |
| 3. Yellowknife | 13. Spokane |
| 4. Edmonton | 14. Denver |
| 5. Saskatoon | 15. Salt Lake City |
| 6. Winnipeg | 16. Duluth |
| 7. Toronto | 17. Minneapolis |
| 8. Ottawa | 18. Kansas City |
| 9. Montreal | 19. Detroit |
| 10. St. Johns | 20. Buffalo |

Major North American Winter Cities

**City:** Kamloops, B.C.

**Population:** 64,048 (1981)
**Elevation:** m
**Temperature:** Coldest Month Av. Jan. High -2.2°C
Low -9.7°C
Warmest Month Av. July High 29.05°C
Low 12.72°C
**Precipitation:** Av. Rainfall 18.97 cm
Av. Snowfall 78.74 cm
**Sunlight:** 2,046 hrs. sunshine/year
**Wind:** N/A

**Features:** Located at the confluence of the North and South Thompson Rivers, Kamloops was founded in 1812 as a Pacific Fur Company trading post. Kamloops is a railway divisional point for both CN and CP railways. Regional industries include lumbering, mining, and agriculture.



**City:** Whitehorse, Yukon

**Population:** 14,814 (1981)
**Elevation:** 2,303 m
**Temperature:** Coldest Month Av. Jan. High -14.66°C
Low -23.5°C
Warmest Month Av. July High 20.05°C
Low 8.05°C
**Precipitation:** Av. Rainfall 14.22 cm
Av. Snowfall 127.76 cm
**Sunlight:** 1898 hrs. sunshine/year
**Wind:** Average 14.1 k/h) maximum 106 k/h

**Features:** Located on the Yukon River, Whitehorse is the Capital of the Yukon Territory. As a major communications, transport and government centre, it has evolved into the largest community in the Yukon.

**City:** Yellowknife, Northwest Territories

**Population:** 9,483 (1981)
**Elevation:** 674 m
**Temperature:** Coldest Month Av. Jan. High -24.2°C
Low -32.77°C
Warmest Month Av. July High 20.5°C
Low 11.4°C
**Precipitation:** Av. Rainfall 13.86 cm
Av. Snowfall 119.38 cm
**Sunlight:** 2040 hrs. sunshine/year
**Wind:** Average 15.5 k/h maximum 105 k/h

**Features:** Yellowknife is the capital of, and the largest settlement, in the Northwest Territories. Yellowknife's Governmental function is accompanied by mining, transportation and distribution activities.

**City:** Edmonton, Alberta

**Population:** 657,057 (1981)
**Elevation:** 671 m
**Temperature:** Coldest Month Av. Jan. High -10.6°C
Low -26.6°C
Warmest Month Av. July High 23.6C
Low 11.6°C
**Precipitation:** Av. Rainfall 33.8 cm
Av. Snowfall 131.06 cm
**Sunlight:** 2203 hrs. sunshine/year
**Wind:** Average 14.1 k/h maximum 117 k/h

**Features:** Edmonton is the capital city of Alberta. It is located on both banks of the North Saskatchewan River. First settled as a fur trading post in 1795 by the Northwest Trading Company, it is now Alberta's largest metropolitan area and a major industrial and distribution centre in Western Canada.

**Special Responses to Winter:** Underground LRT stations and connecting tunnels along with several skywalks are starting to develop a climate controlled pedestrian system in the downtown. While not yet a comprehensive system, carefully placed additions could result in one.

A winter festival has been scheduled for mid February in an effort to encourage a positive attitude towards winter.

**City:** Saskatoon, Saskatchewan

**Population:** 154,200 (1981)
**Elevation:** 515m
**Temperature:** Coldest Month Av. Jan. High -13.5°C
Low -23.94°C
Warmest Month Av. July High 25.8°C
Low 11.6°C
**Precipitation:** Av. Rainfall 24.58 cm
Av. Snowfall 89.91 cm
**Sunlight:** 2381 hrs. sunshine/year
**Wind:** Average 17.5 k/h maximum 151 k/h

**Features:** Initially established as a temperance colony by settlers from Ontario, Saskatoon was to provide a haven from the evils of liquor and impure living. It soon developed as a service centre for the regional agricultural industry. Today it is the largest city in Saskatchewan, and a major distribution centre.



**City:** Winnipeg, Manitoba

**Population:** 584,842 (1981)
**Elevation:** 240 m
**Temperature:** Coldest Month Av. Jan. High -13°C
Low -23°C
Warmest Month Av. July High 26°C
Low 13°C
**Precipitation:** Av. Rainfall 41.09 cm
Av. Snowfall 127.54 cm
**Sunlight:** 2177 hrs. sunshine/year
**Wind:** Average 18.6 k/h maximum 129 k/h

**Features:** Winnipeg was originally a centre for the fur trade and the 'Gateway to the West'. It is the capital city of Manitoba and a significant manufacturing centre.

**Special Responses to Winter:** There is a pedestrian passage under the major downtown intersection of Portage and Main. This intersection is renowned for its high winds and cold temperatures.

**City:** Toronto, Ontario

**Population:** 2,998,947 (1981)
**Elevation:** 115 m
**Temperature:** Coldest Month Av. Jan. High -1.05°C
Low -8°C
Warmest Month Av. July High 27°C
Low 17°C
**Precipitation:** Av. Rainfall 64.9 cm
Av. Snowfall 140.9 cm
**Sunlight:** 2026 hrs. sunshine/year
**Wind:** Average 15.1 k/h maximum 119 k/h

**Features:** Capital of Ontario, Toronto is Canada's largest metropolitan centre. Toronto has become the Country's commercial, economic, industrial and financial centre.

**Special Responses to Winter:** Subway stations protect pedestrians from weather. Eatons Centre in downtown Toronto is an atrium style shopping centre which provides attractive, semi-public spaces, in an elegant, climate controlled environment.

**City:** Ottawa, Ontario

**Population:** 717,978 (1981)
**Elevation:** 103 m
**Temperature:** Coldest Month Av. Jan. High 6.3°C
Low -16°C
Warmest Month Av. July High 26.4°C
Low 15°C
**Precipitation:** Av. Rainfall 64.16 cm
Av. Snowfall 215.54 cm
**Sunlight:** 1989 hrs. sunshine/year
**Wind:** Average 14.6k/h maximum 135 k/h

**Features:** Situated on the Ontario side of the Ottawa River, Ottawa was originally settled in 1827. In 1857 Queen Victoria chose it as the Capital of Canada. Today its Government function is complimented by the establishment of advanced technology research facilities.



**Special Responses to Winter:** Public sidewalks along a section of Rideau Street, have been enclosed to provide protection from adverse weather conditions.

The Rideau Canal system is used for public skating during the winter. A modest mid winter festival is held annually.

**City:** Montreal, Quebec

**Population:** 1,080,546 (1981)
**Elevation:** 56 m
**Temperature:** Coldest Month Av. Jan. High -5°C
Low -12°C
Warmest Month Av. July High 26°C
Low 17.2°C
**Precipitation:** Av. Rainfall 75.64 cm
Av. Snowfall 243.07 cm
**Sunlight:** 1950 hrs. sunshine/year
**Wind:** Average 15.6 k/h maximum 116 k/h

**Features:** Montreal is the second largest French speaking city in the world. It is located at the confluence of the Ottawa and St. Lawrence Rivers on Montreal Island. Dating back to 1535, Montreal has evolved into a world class city and has hosted a world's fair and the 1976 Summer Olympics.



**Special Responses to Winter:** Montreal has developed an "underground city" linking subway stations to office and retail centres located below grade and at grade. This extensive system allows pedestrians to circulate throughout the downtown in climate controlled comfort.

**City:** St. John's, Newfoundland

**Population:** 85,770 (1981)
**Elevation:** 211 m
**Temperature:** Coldest Month Av. Jan. High -3°C
Low -7°C
Warmest Month Av. July High 21°C)
Low 11°C
**Precipitation:** Av. Rainfall 105 cm
Av. Snowfall 330 cm
**Sunlight:** 1435 hrs. sunshine/year
**Wind:** Average 24.3 k/h maximum 193 k/h

**Features:** St. Johns is the capital of Newfoundland. It has one of the best natural harbours in the world. It is the foremost Grand Banks fishing port, and played a major supply role during World War II due to its proximity to European ports.

**City:** Anchorage, Alaska

**Population:** 174,431 (1980)
**Elevation:** 40 m
**Temperature:** Coldest Month Av. Jan. High -6°C
Low -16°C
Warmest Month Av. July High 18°C
Low 10°C
**Precipitation:** Av. Rainfall 35 cm
Av. Snowfall 177 cm
**Sunlight:** Clear 41 days Partly Cldy 192 days
Cloudy 12 days
**Wind:** Average 10.8 k/h

**Features:** Anchorage was founded as the construction centre for the Alaskan Railroad. Anchorage has two major millitary installations. It has become a chief Alaskan port. One of the worst earthquakes in North American history occurred in Anchorage in 1964.

**City:** Billings, Montana

**Population:** 108,035 (1980)
**Elevation:** 1088 m
**Temperature:** Coldest Month Av. Jan. High 0°C
Low -11°C
Warmest Month Av. July High 29°C
Low 14°C
**Precipitation:** Av. Rainfall 35 cm
Av. Snowfall 142 cm
**Sunlight:** Clear 90 days Partly Cldy 116 days
Cloudy 159 days
**Wind:** Average 18.5 k/h

**Features:** Billings is the trade and transportation centre for the large agricultural district known as the 'Midland Empire'. It has also developed as a major coal mining centre.

**City:** Spokane, Washington

**Population:** 341,835 (1980)
**Elevation:** 720 m
**Temperature:** Coldest Month Av. Jan. High 0°C
Low -7°C
Warmest Month Av. July High 28°C
Low 12°C
**Precipitation:** Av. Rainfall 43 cm
Av. Snowfall 134 cm
**Sunlight:** Clear 89 days Partly Cldy 87 days
Cloudy 189 days
**Wind:** Average 14 k/h

**Features:** Spokane grew as a railroad centre in the late 1800's and became an important mining community - essentially a centre for aluminum production. Spokane is known as the transportation and distribution centre of the 'Inland Empire'.

Spokane hosted a Worlds fair in 1974.

**City:** Denver, Colorado

**Population:** 1,428,836 (1980)
**Elevation:** 1625 m
**Temperature:** Coldest Month Av. Jan. High 6°C
Low -8°C
Warmest Month Av. July High 30°C
Low 14°C
**Precipitation:** Av. Rainfall 40 cm
Av. Snowfall 152 cm
**Sunlight:** Clear 115 days Partly Cldy 131 days
Cloudy 119 days
**Wind:** Average 14.6 k/h

**Features:** A gold rush in 1858 led to the first Denver settlement. Today Denver is the commercial centre of the Rocky Mountain region. In recent years a 200 million dollar renewal project has been implemented in which run-down buildings have been replaced or recycled.

**Special Responses to Winter:** Denver is located close to World Class ski resorts.

**City:** Salt Lake City, Utah

**Population:** 910,222 (1980)
**Elevation:** 1288 m
**Temperature:** Coldest Month Av. Jan. High 8°C
Low -3°C
Warmest Month Av. July High 33°C
Low 21°C
**Precipitation:** Av. Rainfall 91 cm
Av. Snowfall 228 cm
**Sunlight:** Clear 129 days Partly Cldy 103 days
Cloudy 133 days
**Wind:** Average 14 k/h

**Features:** The Mormons, lead by Brigham Young, established the first Salt Lake City settlement. Salt Lake City has become the world headquarters for the Mormon Church. It became a major mining centre in the mid 1800's and presently has the worlds largest open pit copper mine.

**City:** Duluth, Minnesota

**Population:** 266,650 (1980)
**Elevation:** 431 m
**Temperature:** Coldest Month Av. Jan High -8°C
Low -17°C
Warmest Month Av. July High 24°C
Low 12°C
**Precipitation:** Av. Rainfall 76 cm
Av. Snowfall 198 cm
**Sunlight:** Clear 77 days Partly Cldy 103 days
Cloudy 185 days
**Wind:** Average 18 k/h

**Features:** Duluth was established as a trading post in 1817 and is a major shipping centre for the products of the Northwest. One of the largest ports in the USA is located in Duluth.

**City:** Minneapolis, Minnesota

**Population:** 2,137,133 (1980)
**Elevation:** 255 m
**Temperature:** Coldest Month Av. Jan. High -6°C
Low -16°C
Warmest Month Av. July High 27°C
Low 16°C
**Precipitation:** Av. Rainfall 66 cm
Av. Snowfall 166 cm
**Sunlight:** N/A
**Wind:** N/A

**Features:** Minneapolis is a major urban centre located in the American mid west. In 1882 it was touted as the world's largest flour milling centre. Today it is a leader in the research, design and manufacture of computers, electronic equipment and farm machinery.

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**Special Responses to Winter:** Minneapolis celebrates winter with a major winter festival.

An extensive skywalk system has been developed in downtown Minneapolis. This system provides pedestrians with a climate controlled movement system throughout much of the downtown. This system, combined with enclosed semi-public spaces, has put Minneapolis in the forefront of North American cities in the provision of weather protected pedestrian environments.

**City:** Kansas City, Kansas

**Population:** 519,031 (1980)
**Elevation:** 312 m
**Temperature:** Coldest Month Av. Jan. High 2°C
Low -7°C
Warmest Month Av. July High 31°C
Low 20°C
**Precipitation:** Av. Rainfall 93 cm
Av. Snowfall 50 cm
**Sunlight:** Clear 132 days Partly Cldy 85 days
Cloudy 148 days
**Wind:** Average 16.6 k/h

**Features:** Kansas City thrived with the opening of several meat packing plants in the late 1800's. Kansas City city planners pioneered the development of industrial parks by placing them away from residential areas.

**City:** Detroit, Michigan

**Population:** 4,488,072 (1980)
**Elevation:** 202 m
**Temperature:** Coldest Month Av. Jan. High -1°C
Low -8°C
Warmest Month Av. July High 28°C
Low 16°C
**Precipitation:** Av. Rainfall 81 cm
Av. Snowfall 99 cm
**Sunlight:** Clear 75 days Partly Cldy 110 days
Cloudy 180 days
**Wind:** Average 16.7 k/h

**Features:** Antoine de la Mothe Cadillac founded Detroit on July 24, 1701. Cadillac selected the site in order to control river traffic and ultimately the rich fur trade of the upper Great Lakes. Detroit is known as the Automobile capital of the world and has become a major steel centre.

**City:** Buffalo, New York

**Population:** 1,015,472 (1980)
**Elevation:** 215 m
**Temperature:** Coldest Month Av. Jan. High -1°C
Low -8°C
Warmest Month Av. July High 26°C
Low 15°C
**Precipitation:** Av. Rainfall 91 cm
Av. Snowfall 228 cm
**Sunlight:** Clear 55 days Partly Cldy 104 days
Cloudy 206 days
**Wind:** Average 20 k/h

**Features:** Buffalo was the headquarters for U.S. military operations in the War of 1812.

It was in Buffalo that the worlds first grain elevator was built. Buffalo was host to the American Exposition of 1901. The Martin House, designed by Frank Lloyd Wright, is located in Buffalo.

## NORTH AMERICAN WINTER CITIES

In addition to the cities with statistics sited,
North American is well endowed with winter cities.

CANADA

Quebec
Calgary
Red Deer
Regina
St. John
Halifax
Thunder Bay
Kingston
Prince Albert

USA

Albany
Boise
Chicago
Cleveland
Cheyenne
Cincinnati
Des Moines
Erie
Fairbanks
Boston

USA (cont'd)

Burlington
Hartford
Indianapolis
Juneau
Ketchican
Milwaukee
Newark
New York
Omaha
Pittsburgh
Philadelphia
Providence
Rochester
St. Paul
Syracuse
Seward
Skagway
Portland
St. Louis
Sioux Falls
Fargo
Toledo
Wichita